THE

SOUTHERN AGRICULTURIST.

OCTOBER, 1835.

PART I.

ORIGINAL COMMUNICATIONS.

An Address delivered before the Agricultural Society of South-Carolina, at the anniversary meeting, August 18th, 1835; by JOHN S. BRISBANE, Esq.

Mr. President and Gentlemen,

THIS appointment, having been as unsolicited as unexpected, I thank you for it. Whether it proceeded from a partiality to me as an old member, or from the expectation, perhaps incorrect, that I might say something worthy of your attention, in either case, I conceive my thanks to be due.

I am sorry that the tenacity of my memory, from want of practice, is not sufficient to retain the conceptions of my mind. I shall, therefore, be obliged to convey my ideas through a written medium.

In the present state of the world, Agriculture is the basis of life. Commerce and manufactures are essential to its enjoyment, without them life would have few pleasures; without Agriculture, we cannot exist. As the primary object of consideration, it ought to be the first in the scale of importance. In the early establishment of countries when population was thin the spontaneous productions of the earth were sufficient for the inhabitants; as their numbers increased, animal food was found necessary. In the course of time that addition was insufficient, and tillage in its simplest form was resorted to. Pro-

portionate to the increase of means was the increase of numbers, and to know how to cultivate the earth to advantage, became desirable, and thence, as a Science, originated Agriculture.

The increased population of countries rendered the pursuit of it necessary; but the refinement of that population extended its influence to its present importance. To support life is the object of barbarism, to enjoy life is the object of refinement. We therefore find, that as nations advanced in civilization, so Agriculture advanced in importance. The first inhabitants of this country were satisfied with the potato and corn, we must have the salsafy and the cauliflower. It is, therefore, proper to view it in two lights, in reference to the maintenance of life, and the enjoyments of life. Ireland, from its oppression, Africa, from its ignorance, and China, from its dense population, pursue it for the former. The greater part of Europe for both. Italy, Flanders, and other parts of Germany, France and Great-Britain have advanced further in its pursuit, on account of the latter, than the other parts of the Eastern World.

In North America, the Eastern States, for many years after the Revolution, were so much engaged in commerce and navigation, that they paid little attention to Agriculture. Since the overthrow of Napoleon and his restrictive systems, and the general pacification of Europe, who have become their own carriers, they have turned their attention to the Western Country, Manufactures, and the improvement of their Agricultural system, in which they have progressed proportionately to their famed activity, energy, and to use that emphatic word of Dr. Franklin, their mother wit.

We of the South who possess a more genial clime, have been agriculturists from our first establishment in the country, and therefore ought to have made greater progress in the science: but the fact is otherwise. The richness of the soil, length of our seasons and nature of part of our population, at first rendered the attainment of not only our wants, but the accumulation of wealth so easy, that we were satisfied with pursuing the practice with very little scientific knowledge. That time is past. During the Revolution, our courage procured us independence, which dispersed the clouds that enveloped our moral as well as political atmosphere, and introduced a

more extensive system of education, more liberality of sentiment, a wider expanse of intellect, and that refinement which we have now arrived at.

Possessing, therefore, the disposition as well as capacity for the enjoyments of life, we now wish to increase the means of procuring them, and it becomes necessary that we improve the Science of Agriculture. I am sorry to say that its improvement has not been proportionate to what might have been expected. That our system is defective, I think you will admit when I have mentioned my reasons for that opinion. First, our diversity of practice. Who has not heard it mooted on this floor, whether it was best to sow one and a half or three bushels of seed-rice (and its gradations) to the acre; and when sown, whether it should be covered or left open, and when up, whether it should be hoed or flowed first, and when flowed how long the water should be kept on, without our being able to appeal to any standard to establish a rule?

This State, so celebrated for its Statesmen, Orators and Generals, has produced no one who has so far signalized himself for his Agricultural knowledge, as to become a standard, to whose opinion we might resort in this state of incertitude. I cannot ascribe this to a want of ability. There are within the ken of my eye several, who, could they be induced to undertake it, would benefit all who are engaged in the cultivation of rice infinitely, by publishing a set of practical rules, the result of their own experience and observations, which should embrace every operation in the process, from the embankment of the land to the harvesting of the grain.

My second reason is the inferiority of the general product to what it might be and has been. We have been informed upon good authority, that ninety-seven bushels of paddy have been produced to the acre on Savannah, and ninety-three on Edisto rivers. As this quantity is far beyond what planters in general make, the inference is conclusive, that their practice is defective. It does not alter the case to say that these lands were very superior.

Agriculture as a Science is to teach us to produce the greatest quantity of grain to a given quantity of land. The perfection of the art is to enable us to make as much as the ground can produce. By proper tillage and the use of appropriate manure, one hundred and twenty-two bush-

els of corn have been made on an acre of very indifferent land in Massachusetts, which is more than we have heard of the best Western land making. Far be it from me to insinuate that these instances of great production proceeded from a proportionate superiority of Agricultural knowledge. Both of the gentlemen, upon whose plantations these crops were made, acted by their agents, who cannot be supposed (without detracting from their merits) to possess a greater degree of scientific knowledge than the generality of my present audience. One of them to whom I applied for the cause, said that he imputed it to his double drains, that is half quarter drains. I rather suppose it proceeded from a combination of circumstances beyond their control, otherwise they would have continued to make the same quantity, which I believe has not been the fact. Now the common quantity ranges from forty to seventy bushels per acre, which is conclusive evidence that we do not make as much as can be made, and consequently, that our modes are not the best. It might be said, that our object is not to make as much as we might to the acre, but to make as much as possible to the hand. In answer to which, I think, I could prove, if my limits would admit of a calculation, of the relative value of the best land and that of the present rate of labour, that also to be a defective practice.

As a third reason, I will mention our little use of ploughs. Without adverting to the number of instruments under that denomination used by European nations, farther advanced in Agricultural skill than ourselves, I will call your attention to the rationale of them generally. A man with a plough and some animal, will do as much as four hands with hoes, and, provided the plough be properly calculated for the work, it will be done better. Who does not know the superiority of ploughing oats to hoeing them? If, therefore, one hand with a plough, be equal to four hands with hoes, what an immense difference in work will it amount to. Suppose that one half of our hands worked with ploughs instead of hoes, (I do not think the proportion too great, as many would be expert ploughmen, who are scarcely half hands with hoes, and women plough as well as men.) the difference in the aggregate would be two hundred and fifty per cent., all the difference, Dr. Franklin would say, between poverty and riches. It may be objected, that it would be impossible to harvest

it, as a good crop at present occupies the whole season. My answer is, that you can carry away more from a heap than where you have to collect it in small quantities; and that the planters of Alabama, who make four times the quantity of cotton that we do to the hand, do not make that an objection.

Whilst speaking of Alabama, it may be pertinent to remark, that I asked a gentleman who had gone there and returned, why he had done so. His answer was, that he found their superiority of product proceeded from their superior knowledge of ploughing *principally;* that he stayed long enough to make himself acquainted with their manner; that he has adopted it here, and is very well satisfied with his own State. Where ploughing is understood, it is a rule to do nothing with a hoe that a plough can do. In a rice-field it turn the ground deeper, that is, in most cases better; it trenches more regularly, therefore better; it sows for the same reason better; and, after the second hoeing it throws the earth to the stems of the rice, which the hoe cannot do; and, consequently, benefits it more.

My fourth reason is our *little use of manures.* Some one has said "that in proportion to the economy in making manure of any community, you may judge of their scientific knowledge of Agriculture." I fear that the generality of us would be found very low if that be adopted as the scale of comparison. A most respectable exception, whose example, in that as well as in many other respects, is worthy of imitation, informed me that he knew of two brothers making a sterile farm, that previously would not pay its rent, conspicuously productive, by making use of manure, which they had to carry ten miles; by which you perceive how much it is valued in England. Few of us would have one mile to carry it. They probably had to buy it also.

Though Agriculture is emphatically the Science of induction, and no conclusion ought to be admitted which is not predicated upon facts, I will advance a theory (that has novelty at least to recommend it) merely to illustrate the advantageous use of manure.

Earth, strictly so termed, that is, its elements, clay, sand, lime, and magnesia, are no more the food of plants than air is of animals or water of fish. It is the substance which supports them in their erect position as the air, by

its equal pressure does animals, and enables them to seek their food by the roots and leaves, as the air does animals by locomotion. Putresent matter is the food of every substance endowed with life, whether animal or vegetable. In its organized state it is the food of animals, when decomposed it become the food of plants. The turkey, or cabbage, which we eat, when putrescent and decomposed, is committed to the earth, and becomes the food of plants. The plants grow, become the food of animals, who become the food of each other, and again return to the earth, and feed the roots of vegetables, or are dissolved into gas, and nourish their leaves; so that the same substance either organized or decomposed, furnishes the food of all life. We here perceive the beautiful order of nature, whose laws are always simple when understood, and chemistry has done much lately to develope them to our understandings.

Now for the illustration. Where we wish animals to grow to the utmost size that nature has limited their genus, we feed them with the greatest abundance of food, and that of a quality most congenial to their specific organization. With plants we must pursue the same practice. In those places where plants are produced spontaneously in such abundance as to be sufficient for the support of animals, we have little to do but to protect them, and prevent their mutual destruction; so, where we find diffused through the earth, an abundance of putrescent matter, as in the Western prairies, or our river-swamps, we are restricted in operation to sowing the seed and preventing their destruction by weeds. But in both cases where nature has not been so prodigal of her favours, or we have wasted them, we have to supply by our own energies the deficiency. Hence arises the advantages of the Science of Agriculture, which enables us, by manure, to furnish the requisite quantity of nourishment, or by tillage to enable the plants to extend their roots in search of it. The high price of rice and cotton has induced us to restrict our agricultural operations to those plants alone for sale, and corn, peas and potatoes for consumption.

As my address is to rice-planters exclusively, I have confined and shall continue to confine my observations to that plant. It is a common opinion that our rice-swamps upon the rivers are inexhaustible, that is, that they may be planted forever without any material dimi-

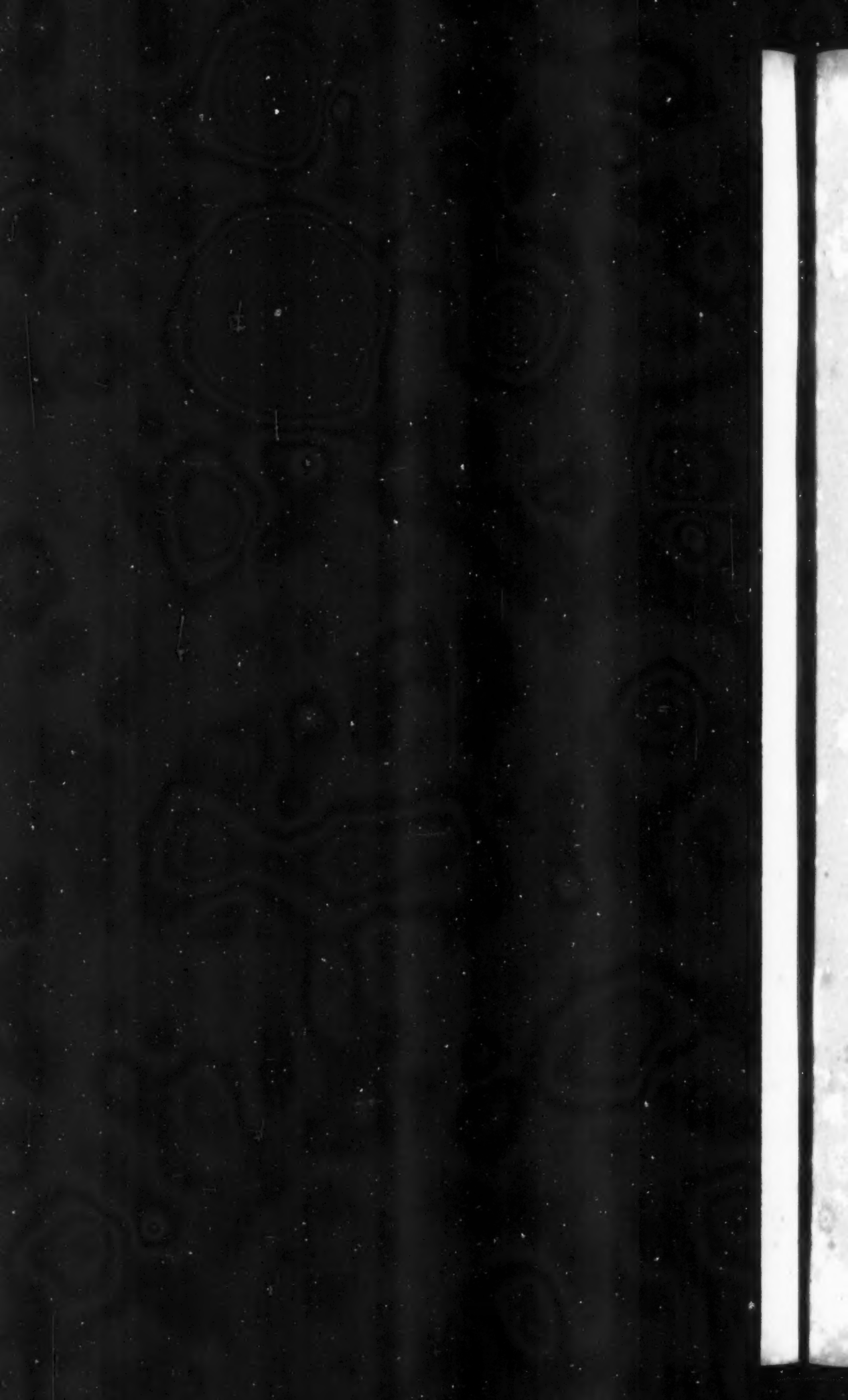
nution in their product. The only difference to their disadvantage being, that they become lower, consequently are drained with more difficulty. I am of a different opinion. Every one will admit that when first reclaimed, our river-swamps from exuberance of richness, endanger the crop from the too rapid growth to flagginess, that is to a disproportion between the plant and ear, in the same manner that too much manure to a fruit tree will occasion the viviporous buds to preponderate over the oviporous, and prevent the production of much fruit. It makes it also obnoxious to another loss, the falling of the rice. The strong analogy between the animal and vegetable kingdoms is here exemplified. Where an animal is supplied with an over quantity of food, to obtain which it makes no exertion, it grows to a great size, but its strength is disproportionate to its bulk. So it is with a plant placed in an exuberant soil, it has no occasion to send out many roots in search of food, the stalk grows to a disproportionate size, and is liable to be thrown down by every blast: after a time a better proportion between the stalk and air is obtained, and we have then the best state to mature the greatest quantity of product. But this medium does not last many years.

Every one knows that our mode of culture has been much improved. We drain our lands better; we understand irrigation better, and we plough and harrow, which we did not formerly. Yet, it will be admitted, the product per acre is less than it used to be, which proves that our swamps do deteriorate after continued planting. It would be contrary to every known principle if they did not; and I fear that if means are not made use of to renovate them, their deterioration will be in an increased ratio. It will be said, that it is impossible to exhaust a soil, that is composed of so much mould; that is, that it contains so much putresent matter. That may be, and yet we may exhaust the particular component part, which is necessary as food to that particular plant, and the soil as to others be still rich.

That different plants feed upon different food, presents another analogy between the animal and vegetable kingdoms. What the horse refuses, the cow will eat with avidity, so some plants will grow luxuriantly where others will not; for instance, corn, where cotton will die. Again, lands which have been exhausted with one species

will produce another, so after horses and cattle have refused feeding on a pasture; sheep and goats will thrive on it. Hence originate the rotation of crops. No good Agriculturist will plant wheat on the same field in succession for that season, but will not hesitate to plant any other grain in it. I will allow that we cannot substitute any other grain for rice, which will be as profitable, but see no reason why we may not make use of some manure which may afford either a condiment or pabulum to increase the production, for that it can be increased is evident from the disparity of the fields. The manure from a horse or ox, if economically saved and mixed with three times its quantity of vegetable matter, will form a compost sufficient for an acre of ground, but it may not be absolutely necessary that the compost should have one-fourth animal manure. I know a judicious planter, at Ashepo, who had a field of rice blighted by some casualty, after it had grown to its usual height. He cut the whole of it down and had it carried to a cotton-field where the clay predominated so much as to render its cultivation an expense rather than a profit; but, from its location, it was desirable to have it planted. He had it regularly spread and listed in—the result was, a very fine crop. The fault of the land was too much tenacity in the clay, which was corrected by the straw, that at the same time manured the ground. That is, the defect of much of our rice-land, particularly inland-swamp. Vegetable matter, with a sufficient quantity of of side ditch mud to decompose it, would tend much to meliorate all such soils. I know of no more economical mode of manuring land in this situation, than by planting it in peas to be covered in about the time of blossoming.

The partiality of the inhabitants of the sea-island to their homes, and dislike to emigration, induced them to make use of various means to renovate their exhausted lands. Salt-water, lime, marsh-sedge and mud, were resorted to for that purpose, and they have so strong a conviction of the advantages of manuring, that it would be as remarkable now, to find a planter who did not manure, as it would have been years ago one who did. I had a very agreeable opportunity of knowing this fact a few weeks since, in being present at the reading of a report to an Agricultural Society, by a gentleman (whose scientific



knowledge does him much credit) appointed to investigate the state of the crops in that section of country. That mode of proceeding I would recommend, and would debate upon it were it compatible with my limits.

(To be Concluded in our next.)

On Steaming Corn-stalks as a Food for Cattle.

To the Editor of the Southern Agriculturist.

Sir,—In looking over, with much pleasure, the VIIth volume of the "*Agriculturist*," in No. 8, I discover some remarks on the subject of ploughing in corn-stalks, for the purpose of adding to the fertility of the soil, or, in other words, of making manure of them.

Observation, reflection and reading a good deal on the subject of the corn-stalk, induced me some time ago, to endeavour to turn this part of the refuse of the corn-crop to a better account, than suffering it to remain in the field, or to be ploughed into the soil; and I view myself as not only having succeeded in that object, but also having produced, by my mode of appropriating them, a superior mass of excellent manure, through their agency, and greatly superior to what any given quantity of them alone, could possibly produce.

After all the discussions on the subject of manures that I have seen, and there are many of them truly valuable; after all the discoveries of substances that may be applied in fertilizing the soil, with great effect, and we are certainly much indebted to science for the discovery of many singularly valuable, I believe it will be readily admitted, that we must rely on the animal world for a great and valuable portion of such matter, as will communicate fertility to a soil, of which it has been exhausted by cultivation, or which it never had.

The certain and valuable effect of animal excrement on other matter, in preparing it for acting as a fertilizer of soil, cannot be lost sight of, and that in accumulating composts, one of the happiest modes of recruiting, or preserving land, it certainly forms an admirable basis.

A variety of considerations, appear to me, to induce and urge the procurement of animal agency in forming manure, in the form of compost, and so conclusive with

me are those considerations, that they leave me with my own consent, no other course than to keep all the stock I can procure and support well. I know of no part of the United States, in which good cattle will not command a fair price, either in the form of work-steers, beef-cattle, or milch-cows; of mutton, lamb, and wool, the same may be said. If this is the case, it then follows, that it will be the interest of the farmer to turn to the support of cattle, sheep, &c. every thing that can be rationally turned to that account, and to keep all that he can support well. Another argument is derived from the fact, that to enjoy a comfortable existence, it is a great insurance, to have a plentiful supply of stock, of different kinds, especially of the provision kinds.

Another consideration arises from the existence of the fact, that there are so many vegetable matters, as also animal, to be found in every section of our country, that with the aid of animal excrement, can be so readily turned into an enriching compost manure. This last consideration applies more especially to leaves, weeds, and swamp mud; and it cannot be forgotten, that one of the best vegetable dry provisions, for the supply of stock, is the most easily procured, in every part of our country, and in any desired quantity, viz. rye-hay, and it must be equally recollected, that in the production of this resource for supporting cattle, an ameliorator of the soil is employed, and one that can be followed by another crop in the same year, produced almost without labour, equally ameliorating, and if judiciously husbanded, extremely valuable, viz. the pea.

If the advocates of ploughing in the corn-stalk, are wanting in reality to fertilize the soil, through their agency, why not let it be done in the manner best calculated to produce the greatest effect, and the most lasting results? On this theory I have acted, in appropriating the refuse of corn, to a use, and especially, with an eye to the accumulation of manure, for with me, manure is every thing.

By a perusal of one of the most valuable agricultural communications, that our annals of agriculture can produce, from the pen of the distinguished farmer, Jesse Buel, Esq. of Albany, (see his papers on the cultivation and saving on the corn crop,) it will be seen, that a crop of corn, can be, and is saved by him without loss of any kind by cut-

ting the corn down (when at a certain stage of maturity) at the ground; and at the same time, saving and curing the stalk, blade, shuck and corn, while each contains the largest portion of nutritious qualities that can be secured, consistent with a saving of the grain, and with great saving of labour, and in a way much more analagous to the process of nature, than the mode usually adopted; and that the nutritive properties of each, are saved in a much greater degree than by the usual mode, cannot even be a matter of doubt. This course is now pursued successfully throughout many parts of the United States. Our Southern climate enables us, as I have sufficiently proved, from repeated trials, to succeed still better than more northerly. This mode of saving the corn-crop, as one of the steps towards the valuable appropriation of the stalk, in the way of food for stock, I have adopted and pursue; and I am so satisfied with the many good consequences growing out of it, that I could not possibly relinquish it for any other.

After my corn is housed, the stalk, blades and ears of corn, still together, I take wet weather, which forbids doing out-door work, to shuck the corn, the individual taking out the corn from the husk, also strips off the blades, if the last is needed, laying the stalks down regularly beside him, until he has an armful stripped, when he deposits them as regularly, in an adjoining room near to the cutting box, in which they are reduced to pieces of about one inch in length.

This cut stuff is placed in a steaming apparatus, perfectly simple and convenient in its construction, and economical in its cost, capable of steaming about twenty bushels at a time. After the cut stuff is sufficiently operated upon, it is taken from the apparatus and placed in a large trough. In some adjoining casks, made for the purpose, and standing near, but about a foot higher than the trough, I put warm water with as much Indian corn or rye meal, as will produce the vinous fermentation, as if going to distill. This, by a little management, I have always ready, and when it discovers a little of the acetous, I permit the liquid to pass into the trough of the cut stuff and cover it, (which is held down by a tight moveable lid,) by means of a spigot fixed in the casks, and a light moveable trough, such as is found at distilleries, to convey water.

In the course of the night the preparation becomes saturated with the fermented liquor, and in the morning lifted out in baskets, taking no more of the liquor than is absorbed by the stalks, it is fed away to cows, steers, and young cattle. Any person at all acquainted with distillation, will readily see that there is not only no preparation known more agreeable to horned cattle, but equally none known to possess more fattening qualities. Every part of this preparation is eat with avidity by the cattle, and even mules, and some horses eat it with seeming gratification. Salt is moderately used. I have no doubt that if the cut stalks, &c. were put in the fermenting mass, just from the steaming apparatus, and as the last is mixed and put to work, and the whole suffered to go through the process of fermentation together, that the product would be still better, and equally as agreeable to the animal.

It will now be readily anticipated, that taking this course with the stalks, &c. of a corn crop, an acre must yield a prodigious quantity of food, and it does, for on no food need cattle thrive faster, if they get a sufficiency; it appears in the words of the old adage to "stick by the ribs." That the stalk, alone, of corn, possesses at one period, a large proportion of nutritious matter, common observation testifies. It would be perfectly irrational and contrary to all analogy to suppose, that the whole nutritive quality left the stalk on the arrival of the grain to maturity. Repeated experiment has settled that there still remains, after that period, much of the saccarine principle secreted in the dry stalk, and that the process required to bring it forward, is alone wanting to produce it, viz. fermention. This process is carried on in the stomach of the animal, and the result is nutrition. But in passing the refuse of corn through the stomach of animals, it not only supports them, but obtains through their agency the real "leaven of fermentation," for masses of vegetable matter that cannot be employed for their support, but in which the earth around me abounds, and most of which are my pests, and the opponents of my industry, and if not destroyed, its successful destroyer, viz. weeds and leaves. The first and the last form littering of the finest quality, cool in summer, and dry and warm in winter. By employing them in this way, I add to the enjoyment of the animal that adds to mine, and by employing them in this way, through the agency of the

animal, I prepare and secure an insurance for the most prolific return of the earth to my labours.

I will just add, that the stalks, &c. cut up and saturated with the fermented liquor without steaming, will be consumed with avidity by cattle, but I need no argument to convince me that the wood part of the stalk is better prepared for the digestive organs of the animal, by the process of steaming, as also the capacity of the cut stuff increased to yield nutrition.

From actual experiment, I am assured, that I can carry through our winters, well, four head of horned cattle on the stalks from an acre of good corn, permitting the cattle to go abroad when the weather admits. My standing pens are good ones, with shelters on them for bad weather. By littering with leaves, dry weeds, &c. I find myself amply paid for my corn-stalks on the arrival of the spring. CINCINNATUS.

Woodlands, Alabama, Aug. 3, 1835.

Ewbank's Tinned Lead Pipes.

To the Editor of the Southern Agriculturist.

Sir,—I would call your attention to the "Tinned Lead Pipes," lately invented by Mr. Thomas Ewbank, of New-York, as they have not yet (to my knowledge) been noticed in your valuable journal, and as in the July number (in the article on "Irrigation of Gardens,") "wooden or small iron castings," are recommended in preference to leaden pipes.

I have not yet seen any specimen of the invention of Mr. Ewbank, but from the mention made of it in the "Journal of Science and Arts." I have no doubt of the decided benefit of the invention.

Mr. Silliman thus notices it in the number of his Journal, for July, 1834.

"Mr. Thomas Ewbank, of New-York, has invented a method of tinning lead pipes after they have been drawn to the proper size." This is ingeniously accomplished by drawing the lead tubes, (properly prepared with rosin on their surfaces) through a bath of melted tin, kept at such a temperature as to avoid the fusion of the lead.

"We have seen some of these tubes, and their appearance promises a perfect protection to the lead. Should this, after a sufficient trial, prove to be the fact, the discovery will be of great importance, especially for aqueducts.

"We have just seen a portion of a lead tube of two inches in diameter, which, having been laid down in a low meadow in Springfield, (Mass.) where there are the remains of an ancient hemlock swamp, was, in the course of a few months, corroded through and through, and for this reason great expenses are incurred in taking up and replacing the spoiled tubes. We presume that the tin tubes will not be liable to this accident."

In the Mechanic's Magazine for June, 1835, is the following:—

[From the Journal of the Franklin Institute.]

Report on Thomas Ewbank's new process for Tinning Lead Pipes.

"The Committee on Science and the Arts, constituted by the Franklin Institute of the State of Pennsylvania, for the promotion of the Mechanic Arts, to whom was referred for examination, specimens of lead pipes coated with tin, made by T. Ewbank, of the city of New-York.

Report—That they have examined the specimens of tinned lead pipes submitted to them, and are fully satisfied, that the coating of the lead with the tin is complete; and from a description of the process accompanying the specimens, the Committee are induced to believe, that when the pipes are of a limited length, it cannot fail, if proper care be taken by the person who conducts the operation.

The superiority of this method over any former plan known to the Committee, is the facility with which the pipes are tinned, merely by drawing them through a bath of fluid metal.

The Committee, would, therefore, recommend to the Board of Managers, the award of the Scott's legacy premium and medal to Mr. Ewbank, for his important improvement in the process of tinning lead pipes, whereby the cost is but little enhanced, which bring them within the reach of all who may have occasion to make use of the article. By order of the Committee,

WM. HAMILTON, *Actuary.*"

March 12th, 1835.

From the above notices, I think that the invention of Mr. Ewbank deserves the attention of any one who may have occasion to make use of such articles.

Yours, JUVENIS.

Natural Phenomena.

HAIL-storms are attributed to electrical agency, and the stones are said to be larger in proportion to the other tokens of this agency. Another supposition is that the balance of the atmosphere, is disturbed by steam at a high temperature, elevated among clouds at a lower degree of heat.

There are difficulties in either case which we cannot attempt to reconcile, our business being with the surface of the earth, and things resting upon it.

The fall of hail-stones is generally associated with thunder, the centre of each is found to be frozen harder than the outer surface, and they occur for the most part in temperate climates. Authentic accounts of their size represent them to have been found 13 or 14 inches in circumference, and weighing from five ounces to half a pound. The story of hail-stones weighing 100lbs repeated upon respectable authority among philosophers may be true, but to us is incredible.

Recently in Gallatin County, Tennessee, hail-stones fell during a squall, weighing from a quarter of a pound to one pound, and from 8 to 16 inches in circumference. Commodore Porter describes very circumstantially a similar gust on the Bosphorus. Coming with a sound like thunder, the whole Bosphorus in a foam with the splashing of balls of falling ice. They were larger than two fists, and came with such force as certainly to have broken an arm or a leg. Six of the persons in the boats were injured or disabled, notwithstanding the protection of a bullock's hide, under which they crawled; it continued five minutes, and was of limited extent, but when it ceased, the surrounding hills were covered with masses of ice, the trees stripped of their leaves, limbs, and every thing looked desolate. The scene, while it lasted, as a direct visitation from above, was far more awful than the terrors of battle, or earthquakes, or of the sea tempest tossed; the masses were from half a pound to a pound weight The air rushed down into the boat, with the falling masses, and became greatly compressed, so as to eddy upwards against the descending stream, and throw off the hail-stones, for some time, to either side of the boat; the violence of the fall of those which did strike her, was no doubt mitigated by this cause and prevented from destroying the boat altogether.

At Currituck, in North-Carolina, in April, 1828, a hail-storm produced serious destruction—killing cattle, hogs and poultry; the stones weighed from 4 to 5 ounces, and measured 3½ inches in circumference

In the adjacent counties in North-Carolina, during the month of June last, a very destructive fall of hail occurred, the largest hail-stones measuring at their greatest diameter 4 inches. In Goochland, Virginia, in May last, a storm extended over an unusual space, carrying utter ruin to the growing crops; the hail-stones measured 9 inches in circumference. In Prince George's, Maryland, a storm of hail as large as the last, destroyed every thing in the fields, on the 26th of June.

In Chesterfield, Virginia, on the first day of June, three hail-storms succeeded each other, passing over nearly the same track on the same evening, their approach was announced with a roaring sound and rapid discharge of thunder and lightening. On the 30th of June, a heavy hail-storm visited the lower part of Anderson District, South-Carolina, and reduced the thermometer to 50 degrees.

Is the extreme cold of our winter connected with these formidable explosions in the atmosphere? A more general attention to these phenomena, and a circumstantial register of their appearance might enable men of science to reason probably upon their causes.

CONDUCTORS.

Old method of measuring Corn.

[The following was handed by a gentleman of this city, who found it among some old papers, and it proves that the custom of measuring corn is not much improved in the course of 40 or 50 years.]

Measurement of a Binn of Corn in a corn-house, in the ear, giving the nett bushels, supposing it threshed out.

Binn,——	14	feet length,
Multiply	17	feet wide.
	98	
	14	
	238	
Multiply	7	feet depth,
	1666	
Multiply	4	cubic,
Divide cubic 5)	6664	
½)	1333	for the cob,
Nett	666	bushels.

Dr. Leitner's Address—Concluded.

[Since the publication of the preceding part of this Address, Dr. Leitner having had more leisure to investigate the subject, has discovered that his views commencing with the paragraph at page 469, are not satisfactory to him; and, being disposed to ensure as much accuracy on this subject as he was capable of affording, instead of pointing out the discrepancies, has thought fit to write over this portion anew, substituting it as the continuation of his Address, which we promised to conclude in this Number. And in doing so recommend it most cordially to our readers.—*Ed. So. Agr.*]

The next subject, to which I would invite your attention, is the influence of our climate on vegetation. In every country, we know the fundamental principles of agriculture and of gardening to be the same; but in practice, we find every plant possessing a particular habit, and requiring an appropriate culture. A difference of climate, of temperature, a predominance of heat, of cold, of dryness and moisture, all tend to produce new modes of culture, and to require new objects of cultivation. It is in our own climate, especially, which differs so much from that of other countries, that their theories and rules cannot be applied advantageously to our practice before they are essentially modified, and this makes it necessary for us to investigate its peculiarities and the action, which is exerted by it on all the various operations of husbandry. Every one who has paid any attention to the meteorology of our country, cannot have failed to observe, that our climate is essentially different from the same parallels in the old Continent. The great breadth of our territory towards the North, the mass of snows, with which it is covered, and the cold winds, which blow from that quarter, occasions a degree of cold during our winter months, which is almost unfelt in similar parallels of the old Continent, and a conclusion has been drawn, therefore, by Dr. Ramsay, that in comparing American climates with those of Europe, to bring them on a par with each other, a difference of twelve degrees should be allowed for peculiarities in the American continent. This scale will require, however, a slight modification if it embraces the whole territory of the United States, as the difference of temperature observable between the same latitudes of Europe and America, is much less remarkable in those parts of our Continent bordering on the Pacific Ocean,

than in the Eastern parts. Mr. Barton has proved, from the state of agriculture and the natural distribution of vegetables, that the Atlantic provinces are much colder than the extensive plains situated to the West of the Alleghany Mountains. Still less can this scale be applied to the Southern extremity of the Eastern peninsula, as snow and frost cease there entirely. Ice has been seen at Cape Florida, but it is known, that, by the effect of radiation, this will sometimes be produced when the thermometer is from 9 to 12 degrees of Fahrenheit above the point of congelation. The contiguous tropic of Cancer and Gulf-stream, exert such a sensible influence upon the whole district South of latitude 27, that it assumes at once the features of a tropical landscape; I might almost say, that in these regions the torrid zone increases towards the North, and passes the tropic of Cancer. The forests filled with the red, *(Rhizophora mangle)* the white, *(Laguncularia racemosa)* and the black Mangrove, *(Avicennia tomentosa)* the Buttonwood, *(Conocarpus erecta)** and several species of Palms, and the Seaside Grape, *(Coccoloba uvifera)* the Icaco Plum, *(Chrysobalanus Icaco)* the Star Apple or Saffron Tree, *(Chrysophyllum cainito)* the Papaw, *(Carica Papaya)* the Mahogany, *(Swietenia mahogani)* the Lignumvitæ, *(Guaiacum sanctum)* and the colossal Fig Tree, *(Ficus Americana)* are scarcely less luxuriant on the Florida Keys, than on the islands of the Antillan Ocean, where they reach their summit of perfection.

On the other hand it must not be forgotten, that, whilst our climate possesses a higher degree of cold during winter, than that of the same parallels of the old Continent, it also enjoys a greater heat than that of corresponding latitudes, and it is this unequal distribution of heat between the different parts of the year so peculiarly felt in our Atlantic districts, that prevents the domiciliation of many valuable exotics in similar parallels on our own Continent.

Another peculiarity of our Atlantic districts are those excessive and abrupt daily variations, which unfortunately occur most frequently during fall, winter and spring. Many plants will bear a sharp cold in the heart of winter,

* The Florida Buttonwood must be distinguished from the one growing with us, which is the Cephalunthus occidentalis; one belongs to the natural family *Combretaceae*, the other to the *Cinchonaceae*.

but no sooner does a soft air prevail for some weeks, than their roots begin to elaborate their juices under ground, their buds swell and open, and a fall of temperature, if but for a short time, is able to destroy them. We have seen the Orange in Carolina and Georgia, within a few years, resist cold when the thermometer descended to 12 degrees, and suffer no injury but the destruction of the small and tender branches, and the loss of the crop of the ensuing summer. But, whenever sudden and severe cold has occured early in the fall or late in the spring, or has been accompanied by a sleety rain, this tree has been killed to the surface of the earth with the thermometer of Fahrenheit between 18 and 22°. February, we all know, is our most destructive month, because after a few moist warm days with Southwardly and South-east winds, the North-west or North wind returns generally with more violence. The fact, that the Orange and Lemon still flourish at Nice, Toulon and Perpignan, cities of the South of France, the winter temperature of which is equal, if not lower than ours, may now be easily accounted for by the mere circumstance that their winters and springs are more regular, and whenever changes in their temperature takes place, they are not so sudden and great; perhaps, also, the meagre and sandy soil may enfeeble the organization of our trees somewhat, as it has been remarked by cultivators, that trees which grow in a fertile soil are less delicate, and consequently less affected by great changes in the temperature, than those which grow in land that affords but little nutriment. The Mulberry, cultivated in the sandy soils of countries, bordering on the Baltic sea, are examples of this feebleness of organization. Late frosts do more injury to them than to the Mulberry of Piedmont. Most unhappily these sudden and great changes seem to increase in proportion as our soil is stripped of its ancient forest; our winters have become shorter, our summers longer, and our autumns later, but cold, instead of having abated any thing of its intensity, seems rather to have increased. This appears to be confirmed by our meteorological observations, and by the facts that Oranges and Lemons, though plentiful sixty or seventy years ago, are raised now with the greatest difficulty; alas! the last severe cold of one degree below zero, has almost annihilated them, most of them are utterly destroyed, even in St. Augustine, and only a few remain as

memorials of the past. This holds out but faint prospects for the future, and it is sufficient, to discourage our hopes, of ever being able to naturalize tropical fruits in our own State. Whether this seeming deterioration of our climate, is owing to a greater accumulation of ice and snow in more northern regions, or whether it depends on the destruction of forests, facilitating the introduction of currents of air from the North or North-west, I shall not attempt to decide at present, and I leave it to the judgment of gentlemen, better acquainted with the soil and climate of the United States than myself.

China and Japan are the only countries on the old Continent, which share these peculiar features of our climate. "Rapid transitions of weather, says Mr. Timkowsky, are common during fall, winter and spring; 'the days are frequently as warm as summer, while at 'night the thermometer sinks often to 27 degrees. The 'wind blows then generally from the North, occasionally 'inclining to North-east or North-west. Any change to 'South causes considerable variation in the temperature 'of the atmosphere. In April, however, and the following summer months, South-eastwardly or Southwardly 'winds prevail."

And in another part of his work he says: "The climate of the Chinese capital (Pekin) is excessively warm 'in summer and cold in winter. From December till 'March the water is frozen, and the thermometer was 'often 12 deg. below zero of Reaumur, (20 deg. of Fah.) 'yet Pekin is in latitude 39° 54'."

This strong analogy which exists between the climate on the Eastern shores of the two hemispheres in similar parallels of latitude, ought to invite us to the cultivation of the Tea Plant and Camphor Tree. The former *(Thea chinensis.* Sims) has been growing now for a successive number of years in Mr. Noisett's garden; and the last descent of the thermometer to one degree below zero has only destroyed the young and tender branches, and no doubt can therefore exist in our mind, as to the adaptation of our soil and climate to this valuable shrub; also the sweet scented Olive, *(Olea fragrans)* which is said to be employed by the Chinese, to flavour their teas, flourishes luxuriantly in our gardens. It is true, that our population has not advanced yet so far as to render manual labour sufficiently cheap, to cherish its growth

as a staple article, but a enough might be raised, at least for our own consumption. What waste of time would it be, if we had a few Tea Plants in our gardens or farms, to employ our children or servants for one or two hours a day, during a short time in the year, in the picking and curing the leaves, even if we wish to see it done in the Chinese fashion! Why shall we pursue but a few great objects of culture, and depend for the supply of almost every other want on foreign resources, if we know, that our own country is rich enough to supply us with almost all the necessaries of life?

The Camphor Tree is another Chinese production, which we ought to encourage and foster by our patronage. The exorbitant price which its gum has attained of late in our market, makes it really a desideratum. I do not believe that it can withstand a cold, equal to that of our last winter, but we may hope, that this change in the temperature of our winter months, for the worse will not continue, and it is not improbable, that our climate will regain its former state. Even on the Continent of Europe a deterioration had been observed for a long number of years, and many districts of Germany trembled at the thought, that those golden days, when Bacchus smiled upon their hills, would disappear forever from their once favoured land; and the people of Great-Britain complained in the most melancholy terms, that Pomona was about to desert her orchards, and that on ground, where the clustering vine once flourished, the apple had of late years scarcely ripened; but I am informed upon good authority, that during the last years their orchards had again afforded plentiful crops, and that the vineyards had again resounded the echo of the joyful and merry peasant. Every lover of nature must regret, with what tardiness plants from those countries are introduced in our Southern districts. We see with our own eyes, that the Tallow Tree, the Paper Mulberry and Pride of India, flourish luxuriantly in every street of our city and suburbs, and yet we have almost confined ourselves to those plants; we know, that China abounds in valuable fruit trees, and that her prairies are clothed with Strawberries and Currants, and yet her Pomona is a stranger to our fruit gardens; for near two centuries we have been wearing their silks and satins, and yet recent experiments have left on our mind no doubt of the

perfect adaptation of our climate to the silkworm, and the different species of Mulberry. The time may not be very far distant, when the reduced prices of cotton, in consequence of an extended cultivation, may render the acquisition of new industry most desirable, and especially of one, which with the constantly increasing luxury promises to be an exhaustless source of pecuniary profit. The importation of silk in the United States, amounted in 1825, to ten millions of dollars, and the exportation of bread stuffs to five millions. Do not these facts speak of the importance of the subject, and would it not be desirable, to prevail upon our Legislature, to lend its powerful aid in reviving that profitable industry in the Southern States, where it once flourished? There is not the least doubt, that we can produce, at least, silk as cheap and fine as the best Italian or Spanish, and if silk culture is only once re-established, these countries will sink before our efforts in the same way, as they have sunk in the growth of rice and cotton. The present form of their governments, and the extreme distribution of property cannot but produce such a result.

Let me, also, entreat you to continue your exertions with the Olive; it should be borne in mind, that our experiments have been conducted on a small scale, we have never introduced the Corsican variety, which being capable of bearing the vicissitudes of climate would peculiarly suit that of our Southern States. Perhaps, it would be found also in time, that if the European species is engrafted upon our own native Olive, it will be found to bear plentifully in same way as the Quince when grafted upon the Pear. But if even this should fail, and Providence deny us the pleasure of ever seeing the barren tracts and exhausted old fields along our coasts converted into blooming Olive fields, we shall discover some partial amends in our Bene Plant and the Poppy, *(Papaver somniferum)* from the seeds of which a table oil may be extracted almost equal to that of the olive.

The Poppy, particularly, we ought to cherish more in our Southern section, as independently of the excellent oil contained in its seeds, it furnishes also opium, that highly valuable, expensive, and indispensable article of the Materia Medica. The experiments thus far made in Carolina, Georgia and Alabama, are extremely flattering and encouraging. The Opium, which was obtained,

was fully equal or even superior to the Turkey, being purer and containing more morphia. "An acre," says Mr. Ker, "yields in the East-Indies, sixty pounds of opium," which, at the usual price would be between two and three hundred dollars, and there is no doubt, that it may be made to yield nearly the same amount in this country.

The Rheum australe. Don, *(Rheum Emodi.* Wallich) or Russian Rhubarb, is another plant of great importance, which I am induced to believe, would prosper in some of the mountainous districts of our State. For a long time it was believed that the Rheum palmatum, a native of Tartary, was the species, which produced the true Russian Rhubarb, and the difference discovered between the roots of the Rheum palmatum grown in Europe, and the Russian Rhubarb of commerce, was attributed to soil and climate, but it has been ascertained now by Dr. Wallich, the director of the botanical garden at Calcutta and Mr. Don, that the true plant is the Rheum australe, which flourishes on the great table lands of Asia and the Himalaya mountains, at an elevation of 11,000 feet above the level of the sea, from whence the best comes by way of Russia, to the market.* Our maritime districts, I fear, are not appropriate to its culture, as the heat of our summers is too intense and of too long duration, which would prove especially fatal to young plants. We shall encounter, however, less difficulty in the cultivation of the *Rheum rhaponticum*, as *Rheum hybridum*, which are so highly esteemed for tarts and conserves. The whole secret in raising these plants with success in our gardens is to give them as much shade as we possibly can, and to water them occasionally during our severe droughts.

The Jalap, the Castor Oil Plant, the Jujube Shrub, the Chamomile Flower, the Bermuda Arrowroot *(Maranta arundinacea)* and Florida Arrowroot *(Zamia integrifolia)* and a host of other medicinal plants† from foreign climes can be raised with success in the environs of our city; indeed, with little efforts, supported as we are besides

* This species is still called with us Turkey Rhubarb, from the circumstance, that it was formerly derived from the Turkish ports, whither it is said to have been brought from Tartary by Caravans, through Persia and Natolia.

† Almost all the Arrowroot at present in our market, is derived from this plant; it grows extensively in the pine barrens of Cape Florida.

by valuable indiginous plants we might make ourselves almost independent of foreign countries, in respect to the vegetable Materia Medica.

Whether the vine can ever be considered as a great national object in our Southern section, is a question still involved in some doubt. It is not our soil which is hostile to the plant, for there are several of our native grape vines, that produce excellent fruit, but the great difficulty is to check the fermentation of the juice in the process of making wine, at its proper time. This can scarcely be accomplished in any other way, except by means of alcohol, which always alters its quality, and ruins its flavour. But may not this difficulty be overcome by selecting such of our native varieties as ripen about the time of frost, because the juices would then run less promptly through the vinous into the acetous condition?

With regard to foreign Grapes we have been rather unsuccessful, but this arises from the prevalent error, of procuring our vines from countries, whose summer temperature is lower than ours, and whose seasons are shorter. This appears contradictory to my former remarks, as I allowed a difference of twelve degrees for the Atlantic disiricts in regard to their winter temperature, but if this be brought to bear upon the vegetable kingdom, we find that in those plants the organization of which is able to resist the cold of more Northern latitudes, this difference will amount to nothing, as our summer heat is even greater than that of corresponding latitudes. Now the vine is one of those vegetables, which can almost be adapted to any clime, and if we wish to succeed, we should import it from equal or even more Southern latitudes, and not from Germany and France, as we have been in the habit of doing. Perhaps we should then find, that our climate would retard somewhat their growth, and that their fruit would not mature before fall, and this is, as far as I can understand, what we generally desire. Grape vines imported from the South of Italy, Spain,* Greece, Madeira, or Teneriffe, should therefore have a decided preference over those of France and Germany.

* The Oporto and Malaga grape are said to have been cultivated in Savannah in the year 1765, by Pounce de Leon, the gallant knight of the Fountain of eternal youth.

Our mode of planting the Vine must also differ from that of transmarine districts. In Europe, it is generally kept low, the common height to which it is ever suffered to grow, is from four to six feet; but this practice in a country, totally dissimilar in climate, would be attended with no advantage in our Southern section, as the atmosphere is too moist during the greater part of the year. Whenever the early part of our summers is excessively dry, and followed by heavy and abundant rains, we find, that the grapes of those vines, which trail on the ground, or but slightly elevated, or of those which have a thick foliage, are subject to rot, which takes place about the time the berries are half formed or just maturing. This, of course, will be prevented, by training them high, and letting them run horizontally on railings, but the question is, whether the expense of such frame work when extended over a large piece of ground, would be in fair comparison with the success obtained by it.*

Mr. Abraham Geiger of Lexington, however, seems to incline to the opinion, that the rot of the grape is occasioned by insects. Now, I admit that there are many of our vineyards and arbours, that are invaded by different species, and among those the *Melolontha vitis* or Figeater, is the most busy in the gardens of our own city; but notwithstanding this, I cannot coincide with him in this opinion, although he is a highly skilful agriculturist. The mere fact, that the berries often rot when they are about half formed, seems to controvert this opinion, as we are not acquainted thus far with any insect which destroys the fruit in its unripe state. The following trifling experiment, I think, might set the question at rest. Let us select some vines, the grapes of which we know to be subject to the rot, and inclose them in gauze, the meshes of which are sufficiently small to prevent the entrance of any insect, and at the close of a number of years, we might be able to gain some knowledge of this invisible enemy.

While treating on this subject, I am induced to offer you a few remarks on the Rust of our Cotton Plant, a disease, which has long been known to every planter of the South, but the real cause, or origin of which seems up to this day enveloped in mystery. The general opinion,

* See Note at the end of this Article.

entertained in our day, ascribes to it an animalcular origin, and I believe myself, that what is usually misnamed Rust in Cotton derives its origin from the *Tingis Gossypii* of Fabricius, a hemipterous insect; but when others describe the disease as making its appearance first upon the leaves, spotting them with brown or red, and then diffusing itself over the branches, they describe at once, what is termed by agriculturists—Rust, and this is occasioned by the *Uredo Gossypii*, a minute parisitic fungus, which I think arises originally from the deteriorated state of the soil not furnishing the necessary and wholesome food to the plant. The functions of nutrition, secretion and excretion, are of course disturbed, the vessels become gradually obstructed, and the tissue disorganized, which when assisted by great moisture in the atmosphere is often followed by a developement of this fungus.

This view is corroborated by the fact, that this parasite is always formed beneath the epidermis, which it raises in a kind of blister, and at last in bursting, appears on the external surface, when its seed is generally shaken out by the wind and thrown on the soil or field, where it continues to grow and multiply. Should the cultivation of cotton be continued on such a field, without improving the soil, the evil will, of course, be increased, because, besides this morbid disposition, which is induced in the plant, numberless seeds have already been lodged in the soil, which are absorbed by the roots, and propelled along the vessels by the circulating juices to the spot destined for their developement. The agricultural observations that have been made respecting it, are entirely conformable to this opinion. They seem to show, that only worn-out soils produce this disease, whereas the new land remains generally free from it; that open land, which has been covered with saplings, briars and a luxuriant growth of broom-grass, and other weeds, is most calculated to induce this evil, and that it is most prevalent in wet seasons.

If you admit these views of the disease to be correct, it becomes evident that its prevention can only be effected by the improvement of our soils, the burning down of the crop, as soon as rust is observed, and a rotation of crops. The latter, I think, will be found the most effectual remedy, as it is an established fact, that most of the parasitic mushrooms, though met with indifferently

upon almost all the species of their respective natural orders, cannot extend their ravages beyond that order.

It will be found, perhaps, by further investigation, that the *Uredo Gossypii* infests also all the different species of the Mallow family, and then a better name for it would be *Uredo Malvaceæarum*, or what would be still more important, it may be found that the disease originates often in other plants belonging to the Mallow tribe; for instance, the Hibiscus, several species of which are sometimes found in fields thrown out of cultivation, and hence, we may account for cotton becoming infected, if it should be planted in such fields. During the first year umbrageous plants of the leguminous family, especially our Cowpeas and its congeners deserve the preference, as they are our most valuable ameliorating crops; and the second or third year we might plant the field with potatoes, turnips and pumkins. Perhaps, after repeating this for a few successive years, the evil might be eradicated from our fields, and the planting of cotton resumed in them.

The disease which derives its origin from the *Tingis Gossypii* exhibits itself in a different manner. This insect either perforates the leaf-stalk near its expansion, or the seed-pod itself, in order to deposit its eggs. As soon as a metamorphose takes place, the insect leaves its former place and conceals itself on the underside of the leaves, from whence it riddles them entirely. The destruction of the seed-pod generally follows the perforation, as it extracts its aliments by suction, and the pod thus deprived of the fluid, which was destined to nourish the seed, is checked in its further growth. This disease differs also from the former in ensuing generally in fields, which have been the fewest years in cultivation, and in being most prevalent among luxuriant cotton. It has also been noticed, that these insects are most abundant, when we have an abundant share of rain in the spring season, followed by a long drought in summer, and that they disappear entirely after plentiful rains.

Fumes of tobacco and daily watering, by means of large syringes, will no doubt be found the most efficient remedy to check their ravages.

I shall take up this subject again, and I hope, in a few years, to be able to lay before you a more detailed account

of the different diseases and enemies of our fruit-trees and staple articles.

The cultivation of Fruit Trees is a department, which deserves no inconsiderable share of our attention. Often it has been said, that the Apple, the Quince, Cherry and Plum, are not adapted to our maritime districts, but if I should judge from the flourishing aspect of the nursery of John Michel, Esq. one of our fellow-citizens, our conclusions seem to be rather precarious. It is only a few days ago that I visited the establishment of this gentleman, and I have never been so much pleased with the aspect of any fruit garden in the maritime districts of our Southern section. The Apple, the Quince, the Cherry and the Plum, seem to flourish there as well as in the most beautiful orchards of Europe. His golden Reinette and red Calville, are certainly the most beautiful sight, which I have witnessed for a long lime. Let it not be said, therefore, that we cannot raise these products in our low districts; with a little effort and patient toil, and with a knowledge of our department, based upon scientific principles, we may overcome most of our difficulties. From the intensity and long continuance of our summer heat, the sun is in this climate the greatest exhauster of the soil, and hence arises the necessity of giving to our plants as much shade as we can afford. It is in the tropics, where the rays of the sun are so excessively scorching, that nature protects her soil with the gigantic foliage of her palms; it is in those regions, where the light of heaven scarcely reaches the ground, that we find the greatest luxuriance of the never ceasing power of vegetation. Let us profit, therefore, by her example, and imitate her works, and we shall be able to exhibit at least in small quantities, at little or no cost, almost as great a variety and as finely flavoured fruit as any climate with which we are acquainted. Stone fruits particularly seem to be well adapted to our sea-board; and if we could prevent the depredations of the *Curculio* which infests the fruit, and the *Ægeria exitiosa*, which lives on the root, we need envy no country in its Peach or Nectrine orchards. In relation to the first insect, we possess no strictly accurate knowledge, but we may indulge the hope, that our highly distinguished fellow member, Rev. John Bachman, will present us soon with the result of

the experiments on its character, which he promised to us at the second anniversary; in the mean time, a few facts, that have fallen under my own observation, cannot be considered intruding upon the expected essay of that gentleman. As far as my knowledge goes, there are three distinct species of the *Curculio* that infest the fruit at different times of the year; one appears early in the spring, when the fruit is scarcely yet uncovered by the blossoms, and punctures it near the base, in order to deposit one or two eggs; preferring, generally, as also the next species, the smooth skin to the rough. This is the largest of the three and generally of a black colour. The egg hatches in a few weeks, and the larva, which is of a white colour, with a reddish brown head, occasions it to drop often, before it has scarcely attained the size of a nutmeg. Another species smaller than the former, of a light black or brownish colour, appears about the latter end of May or early part of June, and when the season has been backward, this and the former make their appearance almost about the same time. The same process is going on, and the fruit drops generally in July. The third species appears late in the season mostly, not before the early part of July, and injures, therefore, merely our late rough skinned varieties. It is rather small of a brownish colour, with from four to six elevated streaks on the wing coverts, and hairy feet.*

As soon as the fruit has dropt on the ground, the larva issues forth through the punctured orifice, and descends into the earth, where it enters the pupa state. Some of the first species remain often but three or four weeks in this state, and are then transformed into beetles, which deposit their eggs, as before mentioned, but are seldom hatched, as the fruit matures about that time, others, however, and I believe the greater portion, seem to hybernate in the ground. The last species seem to remain the longest time in the pupa state, as they descend about the latter end of July, or early part of September, and remain until the middle of the summer ensuing.

Having ascertained that the worms enter the earth, the most effectual remedy would be, of course, to pave the ground, as this arrests its further progress, and its

* On account of an entire want of entomological works, I am unable to decide whether they may be identified with our European culprits.

destruction is rendered almost certain. But this practice can only be pursued in our yards, not in our orchards, and we not only find, therefore, the fruit raised in our gardens falling a prey to those insidious insects, but they also crawl from our gardens into our yards, and make often the pavement entirely useless. I would suggest, therefore, to the Society another plan, by which I am certain the ravages of these insects will be prevented. We know, that our *Curculio* species are extremely awkward on the wing, and scarcely ever, if at all, resort to it, so much so, that two trees standing so near to each other as almost to touch, the fruit of one will be often destroyed, whilst that of the other escapes. They must, therefore, crawl up the trees, in order to deposit their eggs, and from this we can prevent them at once by tying a piece of cloth, dipped in bridlime,* round the stem about a foot or two above the ground, and by retaining it there from the time our Peach trees commence to blossom, until we have gathered their fruit. This practice is attended with the greatest success in many districts of Germany, where the *Curculios* are equally destructive to the stone fruits, and I am sure that it will meet with general success in this country.

Nothing remains for me to say on the *Ægeria exitiosa*, or the worm which is found at the root of the Peach trees, as this has been correctly described and figured by Thomas Say, in his 2d volume of American Entomology.

Time would fail me, should I attempt a minute detail of all the objects, which claim the attention of our Society, and I shall conclude, therefore, with a few remarks on the ornamental part of gardening.

There is no climate that is more propitious for the rearing of the charms of Flora than our own, no region displays greater beauty in her products, a greater delicacy and splendour in her colours than our Southern section; our forests teem with beauties, which are sought for

* Brirdlime may be prepared in a cheap way from Potash and Burgundy Pitch, in the proportion of one quarter of a pound of the former to one pound of the latter. The Potash is dissolved in about a pint of water, and then we add the Pitch and boil it down to a proper consistency. Prepared in this way it comes cheaper than that made of Linseed Oil, and has not to be renewed so often, as it attracts continually moisture from the atmosphere. Experiments might also be made with Tar, which would be still cheaper.

eagerly by the European amateur, indeed without the tenants of our woods, his walks and arbours would be clad in the garment of simplicity and dulness, and do they not deserve to occupy a high station in their gardens; ought we not cherish and cultivate them with the greatest care? Their aspect cannot but give rise to the purest and warmest feelings of gratitude towards Him, who has bestowed upon us all this, and must endear us more and more to our own native land. Does any thing equal in splendour and fragrance our *Ezaleas*, and in beauty and grace our *Andromedas* and majestic Magnolias? Is the elegant Calico tree, the snow clad *Stewartia* surpassed by any sovereign of the forests of either hemisphere; can even the equatorial regions display more beauty, more magnificence and more grace? Perhaps they may excel them in awful grandeur and luxuriance, but in beauty and gaiety there are many of the flowers of our trees and shrubs that vie with those of the torrid zone, and the light and waving foliage of our *Robinias* and *Gleditschias*, are but the counterparts of the Mimosas of the tropics. They alone would be an incomparable ornament of our gardens, but kind Providence permits us also to gather the bloom and radiance from almost every clime. The sweets of Flora of a thousand hills and isles may be made to flourish in our luxuriant bowers, and what our more Northern neighbours have to raise with care and expense in conservatories will perform its cyclus of growth with us under an open genial sky. Though we can never cherish the woody products of the tropics, yet if we turn from the proud forms of those ancient tenants to the more humble and lower, which clothe the ground with a soft flowery carpet, especially those, which die of old age within a year or two, our climate will scarcely ever exhibit any marks of hostility, and who knows, but we might shade our orchards and gardens with the Bamboo Cane of China. This gigantic grass would at once protect them from the intense and scorching rays of our noonday sun, an object so much desired by every lover of nature of the sunny South.

Nutall commits a mistake, when he enumerates this cane, on the authority of Ware, among the native plants of East-Florida. The tall cane which grows South of Tampa, in those grassy seas, which look as if they had been just recovered from the ocean, and are still in the undisturb-

ed possession of the alligator and musquito, is a species of *Arundo*, which I was unable, however, to determine, as I never saw either fruit or blossom. There is, however, a plant on the Florida Keys, which is called by the inhabitants Bamboo Cane, because its scape or flower-stalk attains a height of from twelve to sixteen feet, the *Agave vivipara*. A new proof of the folly of most of our common names.

The bulbous and tuberous rooted tribes are especially *adapted to our climate*, many are fostered already by the ladies of Carolina, as the showy Dahlias and Ranunculus, the gaudy Tulip and Amaryllis, the dwarf Crocus, and the sweet scented Hyacinth and Jonquille, but a portion by far greater than those remains to be introduced. Most of the species of the extensive and beautiful genus Amaryllis,* are unknown to us, and the *Watsonias*, the *Antholyzas*, *Neuberias*, *Ixias*, *Hæmanthus* of the African plains, the *Crinums*, and *Pancratiums* of the tropics, are still strangers to our Flora.

Before I conclude this subject permit me to say a few words, upon the delights arising from the culture of ornamental shrubbery and flowers. This branch may safely be confided to the ladies; naturally persevering and tasteful in all their arrangements, it is not to be wondered at that we see so many flourishing and beautiful gardens springing up in various sections of our city and neighbourhood, all of them bearing ample testimony of the taste and attention of their fair proprietors. What can be more delightful to them, than to devote their leisure hours abstracted from the higher duties to the household, in observing the gradual progress of vegetation from the springing of the germ to the developement of the leaves, the expansion of the petals in the beautiful and variegated array of nature, to that period, when having parted with its charms, it yields its station to some more interesting object. There is something in a taste for flowers so delicate, so typical of the female mind itself, that we always associate with it, purity and innocence of heart. It is this which gives such a charm to a well regulated flower garden, we behold in its arrangement and neat appearance the delicate hand of the fair spreading before

* What is called Amaryllis gigantea with us, is *Amaryllis longifolia;* the true Amaryllis gigantea is quite a different plant.

our eyes the beauties of nature, decorated in all her variegated charms.

In the pursuit of this object I would suggest to them the impropriety of setting their plants in masses, because spaces are formed both before and after the plants have bloomed; thus: if we set apart distinct beds for hyacinths, ranunculuses, anemones, or tulips, in one word, if sint gle beds, contain only single species, a blank will be formed before one of those produces its flowers, and a mass of decaying leaves when the glow of their petals is no more, thus presenting an unsightly appearance. By keeping the plants separate, more beauty is displayed, and the fragrance of the blossoms more diffuse; a mingled flower garden when judiciously arranged is the most to be desired; the intermingled variety is more agreeable to the sight, and the charms arising from the intermixture of colours, is peculiarly fascinating. Let our fair countrywomen then embrace this innocent and agreeable recreation, so conducive to health, with that ardour the subject is so well calculated to inspire; let us afford them all facilities in our power to indulge in this rational amusement; whilst we bear in mind that it is our duty to pursue with ardour and unremitting assiduity, whatever may tend to promote the AGRICULTURAL INTERESTS OF OUR COUNTRY.

Note.—Most of the Vineyards along the Rhine, in Germany, belonging to persons of wealth, for instance, those of Prince Metternich and Duke of Leuchtenberg, present the form of rising arcades. They consist of two rows of oak posts, of about 7 feet high, 2 feet from each other, and 3 feet 5 inches in breadth. Each row is joined at the sides by laths, nailed lengthways, and wooden arches unite the rows. The vine is trained up on these posts, so as to bring all the fruit, foliage and young growth on top of the arches. Grapes matured thus, are superior to any other obtained in the usual way trained like red currants or raspberries, as pursued in France, some parts of Germany, Cape of Good Hope, &c.; indeed, the best Hochheimer, Ruedesheimer, and Tohannisberger wine comes from vineyards constructed in this way. The process of pruning, I believe, is almost the same as practised in espaliers.

Sheep Husbandry.

WHEN we attempt to draw from books relating to agriculture in other countries, lessons applicable to North-America, the difference of circumstances discourages our investigations, and we are driven to abandon the hope of any profitable use of maxims established by the experience of older and more populous regions. Without doubt, it is a well founded caution which suggests, the

difference in the supply and control of labour, and the various incidents to our recent occupation of the territory we cultivate, as restraints upon our enterprize. But we have still a strong impression, that more *practical* benefits than it is usual to witness among our cultivators, can be derived from a judicious adoption of the husbandry taught in books. For example, the county of Norfolk was like our low country, distributed into large farms, containing, where the soil was very sterile, as much as three thousand acres, in some instances; the land was either salt-marsh and fenny land, or sandy ridges adjacent. A complete revolution of the unthrifty farming prevalent there, has been effected, chiefly by the introduction of the turnip-culture; the markets are now abundantly supplied with wheat grown to great profit, and in heavy returns, where, originally, the inhabitants bought their bread from neighbouring districts of more fertile soil; in fact, where not a grain of wheat was produced, the largest crops known to English farming have since been reported year after year. As the growth of wheat is their test of productive agriculture, we need not enlarge on the flocks and herds they feed, incidental evidences of so remarkable a change.

How has the turnip-culture occasioned this revolution?

For the most part, by enabling the farmer to increase his stock of sheep, and feed them, confined by hurdles, over the whole field in successive portions; their droppings prepare the land to reward the toil of the labourer, in crops which exact more from the land, and at each return of the flock something more is gained than the crop demands, and the soil progressively ameliorated is better capable of maintaining the flocks which pay so well for what they derive from it.

Another example of the advantage of this mode of improving the soil, is furnished in the Northern part of the great valley of Virginia, the business of the inhabitants there, is to cultivate wheat, clover and Indian corn; the blades are never stripped from the corn, but at maturity the stalks are cut, gathered into large conical stacks, and remain in the field to dry with the grain unreaped. Men make it their calling, to buy up the cattle bred in the Alleghanies and collect them into droves, (as we have seen them) exceeding a thousand head; in the fall of the year, these pass down the valley and are distributed,

among the farmers, who select and purchase from them the number requisite to consume their produce profitably. The fields upon which the corn is stacked are seeded in wheat, as soon as the harvest occurs, and the cattle are fed on the next lot, intended in its turn to grow corn; they eat up the stalks, blades, and ears of corn indiscriminately; and this is celebrated among them as their improving husbandry, just as the people of Norfolk praise their turnip culture. They all agree in opinion upon the admirable results of the plan in ameliorating their soil; the cattle become fat, are driven to market at the cities, and make room for a new stock from the mountains.

But this, it will be said, is not our low country, although they do use negro slaves.

We know a parallel in the lower country, in the case of Mr. G——, of John's Island, than whom there is not a more skilful and successful planter among us; we state from memory the substance of a conversation, and may err in trifling particulars, but not in any thing of importance. His plantation is divided into two changes of fields, he keeps 120 head of cattle, and pens them at night in succession over the whole of that portion which lies fallow, never permitting the pen to remain more than *two or three* nights in one spot; in this way his stock of cattle passes in turn over the whole of his fallow land, which the year succeeding has produced an average of 160lbs. of clean Sea-Island Cotton of *fine* quality, on 300 acres of land.

If this result is produced here, among us by the use of black cattle, how do sheep compare with them as a profitable stock?

It is generally agreed that sheep leave more upon the land, in comparison with the feed they require, than any other stock. In the Northern States when the ewe is about to drop her lamb, she is housed and anxiously watched by the shepherd, who sleeps with her in an out-house, sometime warmed by a stone. Here it is a rare thing to see an open shed provided for our sheep, and nobody ever thinks of troubling his head about his ewes, at this more than at any other time; the climate gives us a great advantage in breeding, and a much greater in feeding; it is rare that our winters shut us out from green pastures any month in the year; not even the last, which has been quaintly celebrated as the year *eighteen-hundred-and-*

frozen-to-death. In addition to the turnip-culture, which may be used here exactly as it is in England, our abundant potato crops furnish us with a great resource for flocks during the winter, and supposing the large ones selected and sent to the market, those which are cut in the harvest or too small for market, may be turned to advantage in fattening sheep. But our greatest resource is to be realized in our *salt marshes;* upon these, sheep may pasture freely; they fatten, and their flesh acquires a very delicate flavour: it would be difficult to exaggerate their extent, and without attempting to exclude the tides, a little work judiciously laid out in embankments to render them more accessible where intersected by creeks, would be richly repaid. Apart from the use we propose to make of this kind of stock in ameliorating the soil, overtasked in our exhauting agriculture, it is a matter of surprise that nobody has gone largely into the business of sheep-growing; a liberal use of salt pastures is a security against the most formidable epidemics which attack them, and a calculation of their profits, as stock alone, would be a sufficient temptation, one would think, to lead gentlemen on our sea-islands into this husbandry; we mean, by this, into keeping flocks of a thousand or more. If it be objected that they would need attention, let it be granted, the answer is that they compensate all the attention they can possibly require. We know a small flock upon a common fresh pasture, which last spring, produced 22 lambs to 24 sheep. Admitting this to be an extraordinary instance, and taking one half of the number of the stock to be a fair calculation of the number of lambs, one year's product replaces the cost and adds to the fertility of the lands cultivated, far more than the hands employed in tending the sheep could do in collecting manure. It is not to be denied that this bears the character of an experiment, and for the present, is reserved to some gentleman whose wealth makes it a safe attempt; an appropriate enterprize for the active proprietor of Bull's Island, for instance. If enough has been said to awaken attention to this topic, our object is accomplished; if not, it is evidently not in our power to do good in this way.

Annexed is a statement, in detail, in a stock-farm, its expenses and profits. The prices of stock-sheep vary here from $1.25 to $2 a head. Our butchers declare

that they give for fat lambs and wethers from $3 to $6 a head, and it is obvious to any one in the habit of attending the Charleston market, that there is still ample room for additional supplies of fat sheep, without affecting prices; the taste for this food has obviously extended with the improvement in the supplies: we should rate a fleece of washed wool at 3lbs. and the price at thirty cents, with these ingredients, the calculation subjoined may be adapted to our circumstances by any reader.

"*Estimate for a Farm devoted exclusively to Sheep.*—A farm, containing 1000 acres of land, under a good fence, having a dwelling house and all necessary out houses, together with two milch cows, two work horses, (or four oxen,) two breeding sows, one thousand sheep, a light wagon, cart, gear, ploughs, harrows, hoes, spades, axes, and all other necessary utensils, may very readily be purchased in convenient locations, either in Maryland or Virginia for $12,000; which if it yields only six per cent. on the purchase money, or $720 nett per annum, would be a more profitable and safe investment than can be made in any stock in the United States. But it is susceptible of demonstration, that with tolerably judicious management, it may be made to yield nearly double that amount, and be itself annually improved in value.

The following is the system of management, which, after long experience, I have no hesitation in recommending.

The farm and every thing appertaining to it, except the sheep, being secured at the beginning of the year, the first operation should be to throw it into three divisions, viz. two fields for grazing, of 350 acres each, and one of 300 acres, comprising the woodland, garden, house lots, and about 100 acres of open land for cultivation and improvement. This arrangement and the necessary fences may be completed during the freezing and wet weather of January, February and March; while the dry and open weather of those month should be devoted to ploughing and harrowing about 40 acres of arable land; one-half of which may be sown in oats, for a crop, by the end of March, and the other half planted in corn between the 1st and 15th of April.

These operations being completed, there will be time enough before the corn requires cultivation, to plough, harrow, and sow down in oats, ten acres more of the arable land for the purpose of improvement, by folding the sheep and cattle in them during the summer and fall; after which, the chief occupation of the hands till harvest, will be the cultivation of the corn and attention to the sheep, which ought to be purchased and brought on the farm as early in May as possible, and together with the cattle be folded every night on the oat grounds prepared for them, in a pen containing about half an acre of land.

As this business of folding is to be the great source of improvement and profit on a sheep farm, it ought to be managed with the greatest care. No danger need be apprehended to the sheep either from dogs or disease, provided cattle be always folded in the same pen with them, and care be taken never to put them up till after sunset, and always to turn them out before sunrise. With a view to the rapid and permanent improvement of the soil, I consider the following the best possible mode of conducting this part of the system.

When the first fold is sufficiently manured, (which will be eight or ten days,) the pen should be removed, the ground ploughed, harrowed, and sowed down in oats, and ruta baga turnips; and the same process be pursued with each succeding fold, till the 1st of August; care being taken in the mean time to turn all that portion of the land prepared for folding, on which the oats have ripened before the folds have reached them.

On the 1st of August, the sheep should be divided into two flocks—one containing the breeding ewes and stock wethers; the other consisting of the lambs and such other ewes and wethers as it may be desirable to prepare for market. At this time too, the folds should be brought back to the ground first penned and sowed in oats and turnips, which will now be covered with a fine growth, and be ready for a second penning. In performing this operation two pens must be employed for the two divisions of sheep; the lambs and the muttons being permitted to occupy each pen, in advance, about four days, and the main flock following for about the same time.

Lands thus prepared will be brought to the highest possible state of fertility. Such as are penned before the first of September, may be sown down in turnips, for the use of the sheep during winter and spring; and the subsequent penning of September, October, November and December may be put in rye, wheat, kale, Hanover turnips, or any thing that vegetates quickly, for spring grazing. A piece of the poorest land on my farm, treated in this way, (except that wheat as a crop, was substituted for turnips, oats, &c.) fattened me fifty of the best muttons I ever saw; yielded 22½ bushels of wheat to the acre, and is at the end of three years, still covered with a fine coat of orchard grass.

We have now arrived at the period of the year in which the sheep are to be put in winter quarters. For this purpose, the fatted sheep ought to be sold off as soon as possible, the breeding ewes put to themselves in one of the grazing fields, and the rest of the flock in the other. Each parcel should be brought up at night into a small lot near the house, provided with uniform shelters, and there fed both night and morning, on hay, corn tops, blades, or turnips. As the ewes begin to yean, which ought to be in March, they should be separated. or permitted to run on the ground prepared for them during the preceding fall; and their condition will be very much improved at this time by feeding them night and morning with oats in the straw, cut up to a proper degree of fineness.

The operations of the next and every subsequent year, will differ from the first only in this, that instead of breaking up new ground for an oat crop, oats may always be put in the twenty acres of corn land and the ten acres of manured land of the preceding year; and the last should always be sowed down at the same time in orchard grass and clover. Ten acres of highly improved grass land would thus be added every year to the resources of the farm, until at length its quantity would probably justify the introduction of a few choice brood mares, as another source of profit, on the farm.

When the hundred acres first reserved for cultivation, shall, by this process, be converted into grass land, a further encroachment, to the extent of fifty acres, may be made on each of the grazing fields, the same course of husbandry be pursued on them as on the first division.

The only permanent labourers requisite for such a farm as this, would be a man, his wife, and a boy old enough to plough. In shear-

ing time and harvest, it might be necessary, perhaps, to employ additional labour.

The above system is adapted to the poorest description of high and broken lands in our country, and may be applied to a field of any size, from two hundred to some thousand acres. I have now five farms, stocked with two to five hundred sheep each, undergoing this process; and after experience of many years, and even at the present low price of wool, I have no disposition to change my system.

The following I consider a fair estimate of the product, expenditure and profits, of a farm of 1000 acres, thus cultivated.

Product. To be used on the Farm.

20 acres of corn manured in the hill, at three barrels per acre - - - - - - - -	60 bbls.
20 acres of unimproved land in oats, at 5 bushels per acre, - - - - - - - - -	100 bush.
10 acres of manured land in oats, at 20 bushels per acre, - - - - - - - - -	200 bush.
5 acres of turnips, at 200 bushels per acre, - -	1000 bush.
Hay, veal, hogs, &c. &c.	

For Sale.

The wool of 1000 sheep, estimated at 4lbs. (in the dirt,) per head, - - - - - - - - -	4000 lbs.
An increase of 400 head of sheep, after making allowance of casualties, the use of the farm, &c. -	400 head.

Supposing every thing made on the farm, except the wool and the increase of the sheep, to be consumed, we shall have for sale—

4000lbs. of wool, (in the dirt) at 25 cents per pound— equal to, - - - - - - - -		$1000
400 lambs and muttons, at $1.50 per head, - -		600
Gross sales,		$1600
From which deduct—		
For permanent and occasional labour, - -	$200	
For contingencies, - - - - - -	200	
		400
Nett profit,		$1200

Being ten per cent. on the original investment. I will only add that this amount might, of course, be very much increased, by inproving the the quality of the wool. W. H. F.—*Am. Far.*

Hooks in Horses.

To the Editor of the Southern Agriculturist.

Sir,—Lately travelling on a good road, my horse was so indolent and sluggish, all the licking and driving could not get him to pass four miles an hour. The inn-keeper examined his eyes and declared the disorder to be the hooks. I obtained another, and after an absence of three

days, returned, and found him no better. He determined to perform the operation; first putting a cord over the nose or upper lip, and tightening it severely by a stick; he thrust a large needle with thread through the washer of the eye near the inner corner, and forced it freely from the bottom towards the under eyelid. Much fatty soft substance come in reach, which was well peared off by a sharp knife. The ligature was withdrawn and a little salt put on the bleeding surface. I was surprised at the influence it had instantly on his travelling, by imparting action and energy to his gait; I got home with a rode horse, twenty per cent. improved.

Before this operation was performed his eyes were dull and heavy, with a fullness thereabouts. His appetite was good; but the mischief fell mainly on his hinder parts, there was a dull inaction of these legs, they were lifted up with difficulty, and fell with heaviness; his hips tottered to either side as he made his step, in all the sluggishness of an incompetent traveller. But trimming the washers gave action to the heaviness, and energy to feebleness. But how are we to account for this? Would comparative anatomy teach us that the removal of the fatty or bony substance had taken off the pressure from the sensorium, and relieved the coma, like blood, bone or matter, removed from the humam subject? Or does the irritation by the knife on the nerves of the eyes impart vigour and energy to the other parts of the system?

We invoke the intelligence of your numerous correspondents to confirm the theory or disabuse us from error. Facts of the influence of the operation are too numerous to be doubted.

SUBSCRIBER.

Appling, (Geo.) August 18, 1835.

PART II.

SELECTIONS.

The Bleaching Mania; from a Lecture delivered before the Chelmsford Mechanics' Institute; by John Murray, Esq. F. S. A., &c.

[FROM THE LONDON MECHANIC'S MAGAZINE.]

Chlorine (from a Greek word signifying green) is the characteristic name given to a gas discovered by Scheele, in 1774, and called by him *dephlogisticated marine acid gas.* It was some time ago more generally known by the name of oxymuriatic acid gas, from a presumption (now considered to be erroneous) that it contained oxygen; and among manufacturers it goes by the name of the bleaching gas. The mode of obtaining it is very simple. We take black oxide of manganese and mix it with a small portion of muriatic acid, in a glass retort, and on the application of heat the chlorine is evolved. Either alone, or in combination with lime or magnesia, it may be, and is, employed for bleaching paper. I have no objection to its being used by the manufacturer in bleaching his linen and calico, but against the practice of bleaching paper I do protest. The consequences of thus using chlorine—which has the property of destroying ink and other colours—are, that many valuable epistles become illegible, and some have even dropped to pieces on the road. Some of our best modern books are already tottering on their shelves; and numerous deeds and valuable writings, requiring to be kept a great number of years, will, ere a very few, become useless. I have in my possession the remnant of a royal octavo volume, one of an edition of 30,000 copies, printed at the University press in 1818, and it is a singular fact, that there is not a perfect copy now existing. We find that when any thing of a delicate colour is wrapped up in white paper the colour is destroyed. A silk manufacturer once told me he could not preserve his coloured silks; he used the whitest and cleanest paper he could procure to wrap them in, but the colours invariably faded, I told him for the future to wrap them in common coloured, or brown, paper—he did so, and the silks retained their delicate hues. Paper stainers have lost hundreds of pounds in value, in consequence of the destruction of their goods by chlorine. This gas has also the property of dissolving gold. I knew a button merchant, who sent a quantity o. gilt buttons to London for sale; being an expensive article, he took care to have been securely packed in white paper that they might be

kept perfectly clean. The consequence was that the gilt corroded, and the buttons were returned unsaleable. Every thing now-a-days —such is the rage for bleaching—must be bleached. Our linen must be bleached, though by that means we render it yellow; our calico must be bleached; our ginger must be bleached, although at the expense of destroying the very principle which renders it valuable; and by-and-by, I suppose, we shall be bleaching our daily bread. Let us, however, view the case as we ought. If we have an inferior article, paper for instance, the fault is ours, not the paper makers.

We fix our prices, and if I am determined to have a quire of paper for 4*d*. the manufacturer knowing he cannot furnish it of sterling quality, is obliged to resort to the expedient of bleaching, for the purpose of giving a good exterior to a bad material. Perhaps the subject may be illustrated this way: suppose I want a pound of confectionary, I walk into the confectioner's, and say, "if you let me have it for 4*d*. I'll take it, and if not, why I can obtain it elsewhere;" never, for a moment, recollecting that the very materials, or perhaps merely the sugar, costs double the sum. The consequence of this mode of proceeding is, that we have the privilege of swallowing with our confectionary a sufficient quantity of chalk. To such a pitch has the bleaching of paper been carried, that government find themselves obliged to employ a person to watch the manufacture of the paper they require, for the purpose of securing it of a good quality. I know of two cases in which letters containing money have fallen to pieces by the road. One was directed to the post-master of Sheffield, and it so happened that the check was found in the post bag—the person for whom the other letter was intended, was not so fortunate. Every thing is now made up into paper, and in consequence of its being bleached, we do not so easily detect the inferiority. I have by me specimens of paper made not only from wool and leather, but from the bark of the willow, from hay and straw, potato peelings, wood shavings, saw dust, and in short, any thing can be made into paper, *such as it is.*

Culture of the Cauliflower.

[FOM THE LONDON HORTICULTURAL REGISTER.]

The ground on which the cauliflower plants are intended to be planted can scarcely be made too rich, therefore lay on a large portion of rotten dung, and dig it well in.

The best soil in which to sow the seed is one somewhat light, and for thefirst spring sowings rather rich; at all other sowings this is not material.

Always plant in open, airy situations, for the plants will never form good heads under the shelter or drip of trees; sometimes none at all.

The Varieties known amongst us are only two, the early, and the late. The difference betwixt them is very trifling; the one called the *early*, has a slight purple or red colour in its stalks, and probably is a little hardier than the other, and therefore is generally sown in the autumn, to preserve in frames or under hand glassses, for the first crop in spring.

Cauliflowers are raised annually from seeds, and are liable, like cabbages, to be impregnated by bees, &c., during the time of flowering.

There are three principal seasons for sowing, and all three require some little difference in their treatment.

First Sowing Season.—This continues from February to the end of March, and the plants are intended to succeed those sown the previous autumn. During this season, two sowings are usually made, one in February, and the other in March; both require precisely the same treatment, which may be stated as follows:—

Make a hotbed about two feet six inches thick, and as broad and long as may be necessary, for the seed intended to be sown.

When the bed is made, put on a frame, and cover it down with lights, to draw up the heat, and let it remain about a weak to settle, which will reduce it to something less than two feet; then take off the frame, and level the surface of the bed nicely, and replace the frame again on the bed.

This being done, lay about six inches thickness of light rich soil, and on this thinly scatter the seed; sift a little soil over the surface, just to cover it. On the same bed, both radishes and celery may be sown, as they will interfere very little with each other by being mixed.

After the seed is sown, cover down the frame, and so let it remain, until the young plants begin to appear, which will be in a few days. Then give air, and in a few days afterwards remove the lights altogether, during the day, and merely shelter them at nights from sharp frosts, or heavy dashing rains. Or, if the frame be wanted for other purposes, it may be removed altogether, and the bed merely sheltered by hoops and mats.

If it is not convenient to spare a frame for the purpose, one may be made of turf walls, about eight inches high in front, and twelve at the back, and by laying a few bearers across, it may be readily covered with mats, or even hoops will answer the purpose very well. And should the cultivator not have the conveniency for making a hotbed, delay the sowing till March, and select a nice warm border facing the south.

When the plants have become an inch high, prick them out, about three inches apart, either on a warm south border, of light rich soil, or on another slight hotbed; and from this nursery bed, they will be taken to their final destination.

The second crop should be sown in the last week in March, either on a slight hotbed, or on a warm border, which answers the purpose exceedingly well at this time of the year.

The Second Sowing Season.—The sowing at this season is to produce what are usually termed the Michaelmas crop of cauliflowers. This sowing should take place about the third week in May, and a shady border should be selected for the purpose; or if the weather becomes very dry, the plants will suffer notwithstanding all the care that may be taken in watering.

Prick out the plants, when large enough, as recommended for the early sowings, and allow them to remain there until the third week in July, when they may be transplanted into the situations where they are to form heads.

Third Sowing Season.—This season extends from the middle of August to the middle of September, and is intended to produce plants to stand the winter, and to plant out early in the spring for the main early crops, which are generally the finest. We prefer sowing this crop about the second week in September, because when sown in the middle or towards the end of August, they often become too large be-

fore winter, and are more liable to be injured by frost, unless they are checked in their growth, which often ends in their buttoning; that is, forming small heads very early in the spring, which, to say the least, is a very great disappointment.

Sow the seeds on a warm border in light soil, and when they are large enough, which will be about the beginning of November, transplant them in the situation where they are intended to stand the winter. This is either under a south wall, where they will receive no covering, under hand glasses, or in frames.

Where the cultivator has not a frame or hand glasses to spare for the purpose, they will do remarkably well if planted as close under a south wall as they can be placed; and if the weather be very severe, a slight shelter may be given them, but in general, this is unnecessary. These will not be quite so early in forming their heads as those in frames, or under hand glasses.

Planting under Hand-glasses.—Prepare some rich ground, in a warm situation, for this purpose, by digging in a good quantity of rotten dung. Then place the hand glasses about four feet distant from each other, and proceed to plant from six to twelve plants under each, according to the size of the glass. If the day be dry when they are planted, it will be necessary to give them a little water; place on the glasses, and keep them close shut until they begin to grow; then raise the glasses on the south side, with a brick, to admit air in fine weather, being particularly cautious not to keep them too tenderly.

In fine mild weather, during winter, take the glasses entirely off all day, but in frosty weather, and very heavy rains, secure them well from being affected, otherwise in spring, most of the plants will be lost. They may be easily secured from frost by mats or litter, and from rain by shutting the glasses closely down.

It is very possible, that in mild weather, towards spring, the plants will be infested by slugs; the evils resulting from these may be prevented by sprinkling quick lime round each plant, or sowing it all over the ground amongst them.

Keep them sheltered by these glasses till towards the end of April, (continuing fully to expose them in all fine weather, and secure them from frosts;) at which time they will have been thinned out to three or four under each glass, and those drawn out, have been planted in the situations appointed for them to produce heads.

Planting in Frames.—Place the frame on a south aspect, and in the beginning of November, or the end of October, transplant the cauliflower plants in rows, four inches apart, and three inches from plant to plant in the rows; place on the lights, and keep them close shut down, until they begin to grow, then give air in fine mild weather, as recommended before, for those in frames; but secure them from frosts by mats or litter.

A method we have practised at Chatsworth, for some years, may be safely depended on, for producing heads somewhat earlier than can be obtained by the usual mode of planting in frames. This is, by potting a number of fine plants in 60 sized pots, at the end of October, and plunging them in the frame, with the other plants. On the approach of spring, if these roots have filled the pots, it would be advisable to place them in layer: they will greatly outstrip the others in growth, and at the end of April, when they are planted out in the open ground, they will be a good size; and meeting with no check in their removal they will speedily form their heads.

Some persons keep the pots in a vinery, or other house, where a moderate heat is kept; we have tried this plan with success, but they are liable to button, after being turned out.

Final Culture, &c. of the three crops.—The mode of final culture for all is much the same in substance, but differs in detail, in consequence of the seasons at which they are sown; so that it becomes necessary to treat of them separately. And first:—

Final Culture of the First Sowing.—In the beginning of May, prepare to plant them in their final destination, which must be on an open, rich, quarter of the garden, well manured for the purpose.

Take up the plants carefully from the nursery beds, with good balls, and plant them on the quarter prepared for them, in rows four feet apart, and two feet six inches from plant to plant in the rows.

If the weather be dry, water them as often as they require it; either with manured water, or not, as may be convenient; the former will stimulate the plants to grow finer.

The plants raised from the second sowing, at this season, should be finally planted on a rich North or North-east border, where they will produce heads from the beginning of August.

Final Culture of the Second Sowing.—About the end of the second week in July, plant these, as recommended for the last, on an open quarter. Give them water as often as they require it, and they will begin to produce heads in October; and, if the weather be mild, will continue to do so throughout November and December.

Preserving during Winter.—There are many ways of doing this, a few of which we will detail:—

Cut them on a fine dry day, strip off all the leaves, except those close to the head, and bury the heads under dry peat earth; this plan answers very well, for keeping them, but they become so filled with dirt that they rarely or ever can be got wholly free from it again.

Another way superior to the last, because they are not so liable to be dirtied, is to put them in boxes or small barrels, and bury them in a stock of turf, such as is used for burning. We believe this was originally practised by Mr. M'c Intosh, who detailed it in the Gardener's Magazine; this system, however, has its disadvantages, for the close confinement of the heads in boxes or barrels gives the vegetables an unpleasant taste.

They also keep exceedingly well buried in sea sand, perhaps bet ter than in any thing else yet made use of; but they are liable to the objections made against the first system; namely, becoming filled with grit, which can scarcely ever be removed; and another obstacle presents itself here, sea sand cannot be obtained without greater expense in inland counties, than the value of the cauliflowers would warrant.

A system is mentioned in the Caledonian Horticultural Transactions, which consists in burying the whole plants out of doors. On a fine day, dig a trench close under a wall, wrap the leaves well about the heads of the plants, and place the plants head downwards in the trench; then lay the soil lightly over them, in a sloping direction from the wall, and smooth off the surface with the spade, that it may carry off the rain. This system, however, we can say little about, having never tried it.

Another plan often practised, is to draw up the whole plants on a dry day, and without trimming off any leaves, hang them up by the heels to the roof of a dry, airy shed; the only objection to this plan, is,

that the heads lose all that beautiful crispness, and become flabby, and less pleasant to the taste.

Another, and a still better plan, is to take them up in fine weather, with good balls, and plant them in good light rich soil in a back shed, mushroom shed, or any other convenient place of the kind; and if kept free from dead leaves, they will soon form their heads in that situation, and be very good for table.

But the best method we have met with, where there is the conveniency, is to plant them in a brick pit, when severe weather comes on, and by removing the glasses in fine weather, and preserving them from foul, we have cut very fine heads, as good as could be grown out of doors, until the middle of February, when the winter was very severe.

Final Culture of the Third Sowing.—About the middle of April, take up those plants with good balls, that have stood the winter under walls and in frames, and plant them in the situations appointed for them to form heads.

Take up all, except three or four of those remaining under hand glasses, and supply all deficiences, about the end of March. Draw a little earth round the stem of each, give them plenty of air, by propping up the glass on the south side, and as the plants advance in growth, raise the glasses all round by means of bricks, and finally, about the beginning of May, remove the glasses altogether.

The crops will, therefore, come into use as follows:—

1. Autumn sowing for preserving through the winter.

a. Those potted, and preserved in frames, and finally planted under hand-glasses, at the end of March, will produce heads early in May.

b. Those growing under hand-glasses, either planted from the frames at the end of March, or having stood there all the winter, will produce heads by the end of May.

c. Those removed from the frames in April, to the open quarters in the garden, will produce by the middle of June.

d. Those sheltered under walls, and planted in open quarters in April, will produce by the end of June.

2. Those sewn on a hotbed, in February, and planted out finally in May, will produce heads by the end of July or beginning of August.

3. Those sown on a warm border, in March, and finally planted out in May, will produce by the middle of August, or towards the beginning of September.

4. Those sown in May, and finally planted out in July will begin to produce in October, and continue through the winter.

Insects and Diseases.—Whilst young, they are often destroyed by the ravages of slugs, and when grown to a large size, they are often infested by caterpillars, particularly those of the green-veined White Butterfly (Pontia Napi) which secrets itself in the head, and is hard to be discovered, the Turnip Butterfly (Pontia Rapæ.) The Cabbages Brightline Moth, (Mamestre oleracea) and the common Cabbage Moth (Mamestre Brassicæ.) The only way of keeping clear of these is to hand-pick them.

They are also infested with the larvæ of a fly, which causes the clubbing at the roots; many means have been adopted to prevent this, none of which, to the best of our knowledge, are efficient remedies. Charcoal dust has been found to have a good effect as a pre-

ventative, when spread over, and dug into the bed, and soot has been found to have a similar effect, but neither can be depended upon, at times.

Quality of Oak Timber.

[FROM THE TRANSACTIONS OF THE HORTICULTURAL SOCIETY.]

There are only two species of oak that are considered natives of Great-Britain and Ireland, the *Quercus pedunculata*, and *Q. sessiliflora*. The former is called by some writers *Q. robur*, and by others the latter is called by that name. To prevent mistakes, it will be better to adopt the name *Q. pedunculata*. This kind is easily known by the acorns having long stalks, and the leaves having very short footstalks, or in some specimens hardly any. In the *Q. sessiliflora*, the leaves have footstalks from a quarter to one inch in length, and the acorns sit close to the branch, having hardly any stalks. The *Q. pedunculata* contains a great quantity of the silver grain, which shows, when the wood is planed, what workmen call the flower in the wood. In consequence of this, the wood splits clean and easy, and is best adapted for split paling and laths. It is also a stiffer wood, and though it may be broken with a less weight than the *sessiliflora*, yet it requires a much greater weight to bend it, and is therefore, best calculated for beams, or to bear the greatest weight without bending. The *Q. sessiliflora* contains so small a portion of silver grain or flower, that wood of that kind from old buildings, has generally been mistaken for Sweet Chesnut, *(Castanea Vesca.)* This was the case with the roof of Westminster Hall, and many other old buildings, which favours the supposition, that some centuries ago the chief part of the natural woods were of that kind. At present, the greater part of the oak grown in the South of England is the *Q. pedunculata*. Specimens procured from different parts of Yorkshire, and the County of Durham, have all been *Q. sessiliflora*, which is very scarce in the South. There are some trees of it at Renwood, the Earl of Mansfield's near Highgate, which is one of the oldest woods near London, and the greater part of the *sessiliflora* appear to be trees from old stools. *Q. sessiliflora* appears to grow equally well with *pedunculata*. it is a more handsome tree in the foliage, and from finding so much of it sound in old buildings, it may possibly be more durable. It bends from a weight much sooner than the *pedunculata*, but requires a much greater weight to break it; so that from its toughness, it is probably best calculated for ship timber. The old Sovereign of the Seas was broken up, after forty-seven years service, much longer than the general durability of ships, and as the wood of which the ship was built came from the North of England, it is very probable it was the *sessiliflora*. Turkey *(Q. Cerris)* is a native of the Levant; its introduction into England has been within the last century, therefore we have very few trees of large dimensions. It is much finer in grain than our British oak, or foreign wainscot; it takes a better polish, and is more beautiful. It appears to be equally as strong and much the same in toughness as our native oak. For all ornamental purposes, where the wood has to be polished, it is superior, and must be a profitable tree to plant, as it grows quicker than our common oaks, and will thrive rapidly in poor land. Oak timber has for a length of time been imported into this coun-

try from Holland, by the name of Dutch Wainscot, which is generally used for floors, doors, and furniture: it is more straight in its growth, tender and more easy to work than British Oak. It does not require so much seasoning, and stands better without warping, but is not equal in strength or durability to British Oak. They are thought to be the same species as ours, but coming from a natural wood, and the trees growing close, may account for the straightness of the wood, and for its being more tender than our oak, which differences may partly be owing to the soil. There is no other oak that appears to thrive in this country, or is likely to be worth cultivating for timber, except the White Oak *(Quercus Alba)* of North America. Of this there are not many large trees in England, but the young trees appear to grow well, particularly in peaty sand. The White Oak imported from America is heavier than British Oak; it appears to be as strong, and is more difficult to work. There are a great variety of oaks in America, but all except the white oak appear to be of an inferior quality. As ornamental trees, many of the American kinds are beautiful in their foliage, and from the various and rich tints the leaves take in the autumn, they are a great ornament to landscape scenery, and ought to be planted as ornamental trees more than they have been, in parks and pleasure grounds.

W. ATKINSON, Esq.

Old Method of Taking Honey from the Hive.

[FROM THE LONDON PENNY MAGAZINE.]

A correspondent, who apprehends that many of our readers are unacquainted with the manner in which bees are usually deprived of their honey, sends us a description of the process, which he hopes will soon be superseded by the more humane and efficient method of Mr. Nutt.

When the time for taking the honey arrives, which is at the end of August or the beginning of September, on some evening after the bees have retired into the hive, a small hole is dug in the ground near to the stand or bench on which the hive rests. This hole is filled with pieces of cotton or linen previously dipped in melted butter; and when all is ready, these are set on fire, and the hive is gently lifted off the stand and placed upon the hole. The escape of the bees is prevented by the earth which is dug out of the hole being heaped around the bottom of the hive; and thus the poor insects perish amidst the sweets for which they have toiled all the summer, and by the hands of those who have afforded them a house in which to lay up their stores. The cruelty and treachery of this measure could only be excused by that necessity for which it has now been superseded. That our readers may have an idea of the number of these industrious little beings deprived of life for the sake of a few pounds of honey, it may be stated that a single hive is supposed generally to contain 16,000 bees; but let us say 10,000,—then, as each hive affords about sixteen pounds of honey, 400,000 bees must be killed in order to obtain, from forty hives, 640 pounds of honey. When the honey has been expressed from the honey-comb, the comb is boiled in water, which is afterwards strained through a fine sieve, and that which remains in the sieve is the substance called "bees wax," so much used for polishing furniture, &c.

If the season proves unfavourable for the gathering of honey, the bees are not destroyed, as that would be an unprofitable sacrifice of insect life, but they are reserved for another season, and fed during the winter with brown coarse sugar, moistened with ale. A wet summer is very unfavourable to the collection of honey; and in a fine summer it often happens that the bees are deprived of their honey by wasps and wild bees. Our correspondent has known instances in which hives of bees, in a very prosperous condition, have been deprived of all their honey, and a great number of the bees destroyed by wasps. A wasp will conquer five or six bees at once by means of its sharp incisors, with which it cuts large pieces out of their wings, and thus prevents them from flying; and being unable to reach the hive, which is raised some distance above the ground, and from which the wasps always thrust them, they perish during the night.

Culture of the Oxalis Crenata; by Mr. YOUNG,

Gardener to the Earl of Enniskillen.

[FROM THE IRISH FARMER'S AND GARDENER'S MAGAZINE.]

The manner of culture very much resembles that of the potato, with this exception, the tubers should not be planted whole, if so, the plant grows strong and diffuse, causing an abundant growth of offsets from the roots, which impoverishes the plant, and extracts the necessary nourishment assigned to the formation of the tubers.

The tubers should be cut in sets, the same as is done with potatoes and planted out in the first week in April, in drills running North and South, two feet and a half distance from each other, and two feet asunder. Manure or rich ground is not required: the poorer the soil the better, as they will be very luxuriant the first five or six years.

Prepare the ground by digging it deep and breaking it fine; lay the set at the above specified distance, flat on the surface of the ground, and cover it two inches thick with fine dry sand; from this the process is the same as with potatoes; earth up with poor, dry earth, mixed with lime rubbish, such as sorrel of every species seems to flourish in.

As soon as the blossoms have all fallen off, it is necessary to check the growth of the plants, in order to promote the swelling of the tubers. This is performed by taking the stems in the hands, turning them gently round two or three times, and fastening them in this position with bits of branches to keep them off the ground for fear of rotting, as well as to keep them from breaking, in case of high winds.

At present, they are not an early vegetable, but will become earlier in the course of five or six years. As soon the stems begin to decay, they are fit to dig, and should be put by for use in some dry shed, and covered with straw or mats to keep the wind from them. The best way to cook them is, to put them into boiling water; and when they become a little soft, pour off the water and place some hot cinders near the lid of the saucepan, which will thoroughly do them, rendering them dry and mealy. My opinion of them is, that they will soon become a very useful vegetable, but I do not agree with the remarks in the Horticultural Register, that they will supersede the potato.

Product of six plants, - - -	4lbs.	8oz.
Weight of largest Tuber, - - -	0	1
Weight of twelve largest Tubers. -	0	8

N. B. Mr. Young's observation, that the *O. crenata*, is not likely to supersede the potato is a very just one. 1920 grains of the root were ground up, and the farina carefully extracted; the produce was only 30 grains, while that from the same quantity of tolerably good potatoes amounted to 240 grains. This will show its inferiority as an article of food, as compared with the potato.—*Ed. Hort. Reg.*

Oxalis Crenata? If G. E. J. will dig up the plants about Christmas, he will find plenty of tubers. Even when he sees this notice, should any of the plants have been left, he would doubtless find a supply of tubers. It appears to be the habit of the plant to form the tubers late. Some plants, from small tubers, planted in the open ground in April, produced upwards of 20 tubers each, at the end of December. C. M. W.—*Hort. Reg.*

The Madder Crop.

[FROM THE CULTIVATOR.]

Hon. J. Buel,—Sir,—As I consider the madder crop to be one of importance, as well to the grower of the article as to the country at large, I deem it proper to send you a few lines, giving some details of the most approved method of cultivating and preparing the article for use: which, if you deem them worthy of a place in the Cultivator, you are at liberty to insert.

The land best adapted to this crop is a retentive, strong, loam soil, moist, but so situated that the water may pass off in the wet seasons of the year. The plant accommodates itself to almost any soil; for I last fall harvested a piece that yielded at the rate of 5,000 pounds to the acre, (in hill,) which was a dry loamy soil, suitable for the wheat or corn crop.

The method of planting has been formerly in hills, from four to six feet apart. The hills yielded from two to three pounds of ground madder each, on good land.

Madder growers have lately made great improvements in the mode of planting. The drill method was introduced two or three years since, and is now the only way practised by those who raise madder in any considerable quantities. The first drills that were planted, were set in single rows, about six feet apart and eighteen inches from plant to plant. These were found to be too near together, both for the good of the crop and convenience of tending it. It is now ascertained that the best method of planting madder, is in beds six feet wide, with four rows of plants to a bed, leaving a space between the beds nine feet wide unoccupied; or it may be planted with rows of corn or potatoes the first season. This space is useful for various purposes, as passing with a team to carry manure, should it be considered necessary during the first and second seasons. The manure should be cropped between the beds, and mixed with a plough before it used in the beds.

Particular care should be taken at the time of planting, that the ground be not too dry. It should be covered with clear, moist dirt, about two or two and a half inches deep. Soon as it has come up, it should be carefully hoed and cleared from weeds. When it is six or eight inches high, the tops should be covered up nearly to the ends; and covered again as soon as they are six or eight inches high as before. In the fall, before the frost kills the tops, they should be covered entirely up. It is then left to lie till the next spring. It should be managed

in the same manner during the second as the first season; but requires only two dressings before covering up in the fall. During the third season it should be dressed once certainly, and twice if practicable; and by this time the tops may be expected to cover the ground nearly from one bed to the other. During the fourth season it requires no attention till the time of digging, which may be any time in the month of September or October. At digging time, the tops should be cut off with a scythe, and rolled out of the way; then with a plough cut a deep furrow on each side of the bed, afterwards take dung-forks and shake the earth from the roots. They may then be picked up. Proceed in this manner till the whole bed is dug; washed clean and dried in a hop kiln. A stove is preferable to charcoal for drying. Fifty bushels of roots may be dried in a kiln twelve feet square. They should be turned while in the kiln, at least once in six hours, until they are dried, which takes from 36 to 40 hours. When taken out of the kiln, they should be taken immediately to the mill for grinding. Madder has formerly been ground in grist mills, but a much more convenient and economical way is to grind in cast iron mills constructed expressly for grinding madder. They also answer a valuable purpose for grinding coarse grain for provender, in sections of country where grist mills are not near by. They may be propelled by horse power, (one horse being sufficient) or by water power if it is convenient. One of these mills will grind 800 or 1000 pounds a day with one horse. Improved mills of this kind can be obtained by applying to me, at West-Winfield, Herkimer County, or Lester Curtis, Nelson, Madison County. Orders for mills will be promptly attended to; price $20.

The following bill exhibits nearly the cost of cultivating an acre of madder, including the expense of digging, drying, and grinding.

Seed per acre,		$32 00
Interest of land 4 years at $40,		11 20
Ploughing and harrowing twice,		2 50
Planting,		2 00
Dressing, first year,		8 00
" second "		7 00
" third "		3 00
Digging,		21 00
Drying, 25 cents per cwt.		12 50
Grinding,		12 50
Total cost,		$111 70
Product, if well cultivated,	5,000	
pounds, at 20 cents per pound,		1,000 00
Deduct cost,		111 70
Nett profit,		$888 30

A good crop of madder looks small the first season, but those interested need not be discouraged. I have now planted nine acres, and shall be ready at the season for digging to supply seed to a considerable amount. Those who wish for seed, had better obtain it in the fall. Quantity per acre as I plant, 8 bushels.

Price of seed: under six bushels, $4 per bushel; over 6 and under 12 bushels, $3.50; over 12 bushels, $3.

Respectfully, yours,

HERBERT WOODBERRY

West-Winfield, (N. Y.) July 10, 1835.

Profits of the Mulberry.

[FROM THE SILK CULTURIST.]

Though it would seem probably that almost any farmer who has 100 acres or more, if he understood the subject, and was duly informed as to the profits of cultivating silk, would appropriate at least three acres to it, I will confine my calculation to the profits of a single acre, which the farmer can always extend or contract, to suit his own views.

A number of calculations have been given to the public, by different persons, all founded on experience, and probably all true. But as they have been made on different soils, and no doubt with different management and different degrees of skill and care, it is naturally to be expected they all differ. Probably the mean between them may be relied on as a fair average result.

Andrew Palmatier, Esq., of New-York, has given a statement from two acres, which divided will give the following for one acre:

One acre of ground, fenced by mulberry hedges, and set out with trees, - - - - - - - - - -	$250
Interest and additional expense during five years, - -	187,50
The acre will then produce: - - - - -	$437 50
From 5 to 10 years, 10 per cent.	
" 10 to 15 " 47 "	
" 15 to 20 " 112 "	

which will average nearly 45 per cent. for the first twenty years, and continue at 112 per cent afterwards.

Mr. Fitch, who is cited as authority by the Secretary of the Treasury, calculates 40 pounds of silk to an acre, and Mr. Storrs 60 pounds.

According to the calculation of Mr. Palmatier, an acre will pay on an average of 20 years, $205.62, and $490 a year afterwards.

Mr. Fitch's statement, allowing the silk to be worth $4 per pound, would yield a gross amount of $160, and that of Mr. Storrs' $240. Mr. Storrs has had much experience, and probably his estimate may be relied on as the average; though in a better soil, some one may have gone far beyond it.

Queries on Salt Marshes and Meadows.

[FROM THE FARMER'S REGISTER.]

Will herd's grass grow upon land which has been occasionally overflowed by the salt water of the bay, and in consequence thereof has become well saturated with salt? Would it prove destructive to the grass, if the tide should overflow it once or twice in the course of its growth?

It would be conferring a favour on a brother farmer, and perhaps on many, if any gentleman, who possesses the information, would answer the above questions on the subject of meadows exposed to inundations of the salt tide-water.

A FARMER.

Mathews County.

PART III.

MISCELLANEOUS INTELLIGENCE.

The Tomatoes.—Dr. Bennett, Professor of midwifery, and the diseases of women and children, hygeine acclimatement, in the medical college of Lake Erie, which is the medical department of the Willoughly University of Lake Erie, at Chagrin, Cuyahoga County, Ohio, in his public introductory lecture recently delivered in that flourishing institution, made the following statement relative to the *Solanum Lycopersicum*, or as it is generally called, Tomato, Love Apple, Jerusalem Apple, &c. to wit:—

1st. That it (the tomato) is one of the most powerful deobstruents of the Materia Medica, and that in all those affections of the liver, and other organs where calomel is indicated, it is probably the most effective, and least harmful remedial agent known to the profession.

2d. That a chemical extract will probably soon be obtained from it, which will altogether supersede the use of calomel in the cure of disease.

3. That he has successfully treated serious diarhæ with this article alone.

4th. That when used as an article of diet, it is almost a sovereign remedy for dyspepsia, or indigestion.

5th. That persons removing from the east, or north, to the west or south, should by all means make use of it as an aliment, as it would in that event, save them from the danger attendant upon those violent bilious attacks to which almost all unacclimated persons are liable.

6th. That the citizens in general should make use of it, either raw, cooked, or in the form of a catsup, with their daily food, as it is the most healthy article of the materia alimentaria, &c.

Now if these positions be true, it is of the utmost importance that the public should be acquainted with the facts, and it is with this view that I now make this communication for the press, MEDICUS.—*Alb. Ev. Jour.*

The Tomato.—Col. Webb,—In your valuable paper, I met this morning the remarks of Dr. Bennett, of Ohio, from the Albany Evening Journal, respecting the excellent medicinal qualities of the *Solanum Lycopersicum*. But besides these invaluable medicinal properties which the Doctor enumerates of this admirable plant, it actually contains another, in relation to the arts, perhaps equally remarkable. I allude to the juice of the vine of this vegetable, which contains a most superb innate green colouring, which I have known used as a dye, and may be made of all the various shades of green, from the dark to the light pale green; and when mixed with other colours, forms the strongest basis, in my opinion, of any other vegetable. Now is the proper season for expressing the juice. FRANKLIN.—*N. Y. Cou. & Enq.*

Wood Ashes and Salt for Cattle and Sheep.—When cattle or sheep are first turned to pasture it is a common and correct practice to give them salt. And it has been recommended, by a gentleman who had tried the effects of the composition to mix salt with unleached ashes, in the proportian of one quart of fine salt to one-half bushel of ashes, and place the mixture under cover, where the animals can have access to it. This mixture, our informant states, preserves the health of the animals, increases their appetite, and he believes would preserve sheep from the rot, and horses from botts. It is possible, however, that the above mentioned *proportion* of ashes to salt might be refused by some animals. Mr. Samuel Denny, of Oakham, (Mass.) in a communication for the New-England Farmer, giving an account of his profitable Dairy, states that he mixes wood ashes with salt for cows and horses, beginning with a small proportion of ashes and increasing. "One cow is so greedy for salt as to take three parts of ashes to one of salt." —*N. E. Far.*

Brimstone for Cattle.—It is probably not known to many farmers that brimstone is valuable for cattle in keeping them from ticks. These vermin are not only filthy in their appearance, but an injury to cattle. A piece of brimstone as large as a grain of corn, well pulverized, given in a little salt, will cause them to drop off, and prevent others from getting on for 8 or 10 days. I consider brimstone as necessary for a cow in the summer, as salt.—*Sou. Far.*

The Points of a fine Bakewell Buck.—" Short head, broad forehead, straight back, full chest, broad loins, close twist, full deep thigh, deep round rib, short trotters, wide in his gait behind, hoofs inclining a little outward, belly deep and well covered with wool, cod large, shoulder lying well back and thighed down to the hoof.

Gentlemen who may feel disposed to introduce the above breed of sheep on their estates, would do well to pay attention to the above directions, as they are from one of the best judges and most observant farmers in the country, a gentleman who in addition to fifty years experience in the practical pursuits of agriculture, brings a highly enlightened mind, and untiring devotion to all concerned with those pursuits, to direct his judgment to a rightful result.—*Far. & Gar.*

The Plaster Mills at Lubec.—These mills are situated on Morton's Cove, and are distant from the village of Lubec about one mile by water and three miles by land. The Cove affords safe and commodious anchorage, and vessels drawing 15 feet of water can go up to the mills. The building devoted to the grinding of the plaster is 3 stories high, 80 feet long, and 40 feet wide, in the two upper stories while the lower floor has an increased width of 24 feet. Adjoining this, is a building used for the storing of the manufactured article, which is of ample dimensions. To the east of these, a wharf runs out into the centre of the Cove, 250 feet long, and 50 wide, and capable of holding 6000 tons of plaster. From this wharf there is a rail-road, upon which the plaster is drawn by water power to the third story of the large building, where it is thrown into the " crackers" which prepare it for grinding. In passing through the crackers it falls into hoppers in the second story and is ground. Thence it passes into troughs in the lower story, there to be weighed, packed in quarter ton casks, and rolled away to the storing house for shipment. Up to its reception in the storing house, and indeed until it is on shipboard, but little human labour is required. At present there are set five pair of crackers and ten pair of stones, though the building has ample room to accommodate about double the number of both.—*Maine Far.*

Curing Hay.—What would our farmers say to the following mode of curing hay, as practised in Russia, by which all the natural verdure is preserved, as related by a late veracious traveller:—" As soon as the grass is cut, it is, without having been spread, formed into a rick, in the centre of which has been previously placed a kind of chimney, made of four rough planks. It seems that the heat of the fermentation evaporates by this chimney; and that the hay thus retains all its flavours, its colour, and its primitive flavour.

MONTHLY CALENDAR

OF

HORTICULTURE AND FLORICULTURE

FOR OCTOBER.

VEGETABLE GARDEN.

Cabbages.—The plants of your Early York, Sugar-Loaf and Savoy Cabbages that were sown last month, will now be sufficiently advanced to be transplanted.

Let your ground be well manured and turned up spade deep; unless the weather proves very wet, it will be advisable to set out your plants on the level ground, the Early Yorks 18 inches apart, and the others 21 inches.

Hoe your cabbage plants that were put out last month; draw earth around the stems; some of the green cabbage worms will appear this month, if the weather be warm, which should either be picked off by hand, or destroyed with a few waterings of a strong decoction of the Pride of India leaves or bark. The latter is to be preferred.

Cauliflowers.—It is not yet too late to set out Cauliflower plants. Good heads are frequently produced in February from this planting; they do not, however, succeed at this season, at any distance from the sea-board; set out your plants on a very rich piece of ground two feet apart, and treat them precisely like cabbage plants. The Cauliflower plants of former months now require hoeing once in 9 or 10 days.

Turnips.—By this time the Turnips sowed in the last month will be sufficiently advanced for hoeing; they should also be properly thinned. I prefer the red top Turnip at this season of the year to all others.

Ruta Baga.—You may transplant the Ruta Baga plants at from 4 to 6 weeks old with great ease, and this vegetable is greatly improved by this process. This vegetable is deserving of a place in every kitchen garden.

Carrots and Parsnips.—These vegetables, the seeds of which were sown in former months, now require thinning, weeding and hoeing, at least once in two weeks.

Spinach.—It is not too late to sow Spinach for winter use; the prickly seeded is usually preferred at this season. Let the seed be sown in drills 8 or 9 inches apart, and the plants stand 4 or 5 inches from each other.

Endive and Lettuce.—You may yet transplant Endive and Lettuce plants, but there should be no delay, as the cold weather will soon overtake them. In a dry day tie up your Endive plants, a little above the middle, with a small band of grass; by this means they are whitened and prepared for the table.

Celery.—Let your Celery now be covered with earth on a dry day to within 8 inches of the top.

Radishes.—You may still sow some Radish seed; the large winter Radishes succeed well at this season of the year. They require double the space of the Salmon Radish. We have recently seen a new variety of Radish from the South of Europe, of the shape of the Salmon Radish, but of a purely white and transparent colour. It is successfully cultivated by Arthur G. Rose, Esq.

Onions.—You may commence this month to set out your first crop of Onions. Let your beds be richly manured with well rotted manure; they must be 4 feet wide, with alleys between them, of one foot; set out the small Onions in rows a foot a part and 8 inches in the row.

Artichokes.—About the middle of this month examine your Artichokes, and give them their winter dressing. Remove the earth from the plant about two feet wide down to the roots. You may with the trowel, or with a piece of wood, sharpened like a wedge, remove all the smaller shoots from the stalks, leaving four or five of the largest; put a wheel-barrow full of good rotten manure into the hole, and cover it over with earth six or eight inches higher than it was before.

Asparagus.—Your Asparagus plants will be yellow and on the decline towards the latter end of this month, and will now require their winter dressing. Cut off the stalks near the earth and remove them; hoe the alleys and beds, rake the ground as clean as possible, and remove all the weeds. Turn up the ground on the beds either with a hoe or a three pronged fork, usually called a dung fork. Remove the earth one or two inches from the bed into the alleys; place in this bed and as near the crowns of the Asparagus as possible, four inches deep of good rotten manure. Dig out the earth in the middle of the alleys a spade deep, and place the earth on the top of the manure; by this management your Asparagus beds will keep dry and warm during the winter, and produce fine large buds in the spring.

FRUIT GARDEN.

In the beginning or middle of this month you may set out new beds of Strawberry plants. The sooner the work is done the better. Your beds must be four feet wide with four rows on each bed, at about 9 or 10 inches in the row. If the weather should prove dry, let the plants be carefully watered.

Raspberries.—At any time in the month you may plant out Raspberries in some low spot of ground. The stalks which produce fruit this year, will not produce again in the next; therefore plant out young shoots at about four feet apart and 18 inches in the row, let these be well manured and receive a little water if the weather should prove dry, and you have every prospect of a good crop for the next spring.

FLOWER DEPARTMENT.

The gale of September has destroyed many seeds and young Flower Plants; these should be sowed again in new beds prepared for the purpose. Plant cuttings and pipings of Pinks, Sweet Williams' and Carnations.

PLANTS, NATIVE AND EXOTIC, THAT BLOOMED IN SEPTEMBER.

Among our Exotic Plants that bloomed with us during the last month, the most beautiful which we have seen was the *Tecoma pandora*. The *Cactus quadrangularis*, bloomed in the garden of Mrs. Schreiber, and several rare and beautiful kinds ornamented the gardens of Mr. Bennett, Mr. Nicholson and Mr. Michel.

Among the most beautiful of our Native Plants, the various species of *Liatris* were the most conspicuous. All our fields are covered with the yellow blossoms of the *Solidago*. The woods are ornamented with several species of the *Liatris;* two species of the *Gerardia*, are very conspicuous, and our low grounds are in some places ornamented with the beautiful white and yellow *Orchis*, several species of the *Eupatorium*, the *Mikania scandens*, the *Baccharis*, and the *Iva frutescens*, have also been in blossom.

RICE GRASS.

The *Leersia oryzoides*, or Rice Grass, which we believe is yet destined to become of more value to the South than the Clover and Timothy to the North, is just beginning to form its seed. Our low grounds within half a mile of our city are covered with it. In about two or three weeks the seeds should be collected, and planters would do well to have a quantity of it procured. Early in the spring let a piece of low ground be turned up with a hoe, and the seeds scattered broad cast over it. We are under the impression that all our low grounds, our abandoned rice-fields, and places which are now too wet for advantageous culture, may be profitably devoted to the cultivation of this valuable grass.

Errata in our Last Number.

In the sixth line from the bottom of page 453, for "*peated* manure," read "*piled* manure."

In the last line of the same page for "*forcing* of corn," substitute "*firing* of corn."

In the 25th line from the top of page 454, substitute "*balks*" for "*bulk*."

We beg leave to state to our Correspondent, that these errors have entirely arisen from an occasional flourish in his MS. that meant as ornaments, but which rendered that which would otherwise have been plain extremely equivocal: thus, after having written the word "*piled*" very legibly, by an upper flourish, commencing from the termination of the letter "*d*," he not only obliterated the dot which denoted the second letter to be "*i*," converting it into "*e*," but crossed the letter "*l*" converting it into "*t*," making the word "*peated*." We held a general consultation over it, and decided, that as this is an age for coining new words, it was probable this one had been recently issued from the mint, and as such passed currrent with us.

We regret that there is an error in the word "*birdlime*," in page 534—both in the text and note, which the reader will correct; and for the word "*Ezaleas*," substitute AZALEAS; in page 537, line 7, dele "*t*" at the end and insert a hyphen; and a J for T at Tohannisberger.